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16 Jul. 1894.

THE

MASON COLLEGE MAGAZINE.

EDITED BY STUDENTS OF



MASON COLLEGE, BIRMINGHAM.

VOL. I.

1883.

PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

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PRICE SIXPENCE.

VOL. I. No. 1.

THE Mason College Magazine

EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

JANUARY, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

JOURNAL WORKS, TYP.

JANUARY, 1883.

Monday, 15.—The First Number of the *College Magazine* published.
Tuesday, 16.—Spring Term begins.—Lectures commence.
Wednesday, 17.—The Union Committee meet at 5 o'clock.—Zoology Class commences.
Thursday, 18.—
Friday, 19.—Union Meeting at 5 o'clock. *Subject*:—"That the hours of labour
Saturday, 20.— (and business ought to be shortened."

SUNDAY, 21.—
Monday, 22.—
Tuesday, 23.—
Wednesday, 24.—The Union Committee meet at 5 o'clock.
Thursday, 25.—
Friday, 26.—Concert given by the Union at 7.30, in the Examination Hall.
Saturday, 27.—

SUNDAY, 28.—
Monday, 29.—Matric. Pass List published.
Tuesday, 30.—
Wednesday, 31.—The Union Committee meet at 5 o'clock.

FEBRUARY.

Thursday, 1.—
Friday, 2.—Union Meeting at 5. A Paper on "Stimulants and Narcotics," by
Saturday, 3.— [W. V. Featherstone; and on "Degeneration," by C. Reyne.

SUNDAY, 4.—
Monday, 5.—Classified Matric. List is published.
Tuesday, 6.—Shrove Tuesday.
Wednesday, 7.—Ash Wednesday.—The Union Committee meet at 5 o'clock.
Thursday, 8.—Half-quarter day.
Friday, 9.—Union Meeting at 5. *Subject*: "That the Prohibition, in Rule 17,
of Religious Subjects from debate ought to be abolished."
Saturday, 10.—Queen Victoria married, 1840.

SUNDAY, 11.—
Monday, 12.—Charles Darwin born, 1809.
Tuesday, 13.—
Wednesday, 14.—The Union Committee meet at 5.—Meeting of the Council.
Thursday, 15.—The February Number of the *Magazine* published.

NOTICE.

The Magazine will be published every Month, except April, August, and September.

It will be published at Cornish Brothers, 37, New Street, where copies can be obtained.

The price of each copy will be 6*d*. The yearly subscription will be 4*s* 6*d*. Se. post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 1, Vol. I. JANUARY, 1883. Price 6d.

EDITORIAL.

In these days, and in this good town of ours, action treads so closely upon the heels of suggestion that it will not surprise any of our friends that the students of the Mason College are about to adventure an experiment. Some of us have thought that it would be a good thing if there could be opportunities of interchange of communications more deliberately and more fully expressed than is always possible at the pleasant meetings which for the past two sessions have been held within the College walls, with the sanction of the Governors, and, we have reason to believe, with the approval and sympathy of the Professors. It has been felt that any means of strengthening and rendering more enduring the ties which bind past students to the place would be acceptable to them as to us of the present; any movement to quicken the pulses of our common life might serve alike to rouse the indifferent, if there be any such amongst us, and to allure the diligent, of whom we know there are not a few.

And so we have determined to start a Magazine. Some of the objects we have in view have just been briefly referred to. If they commend themselves to the students and friends of the College we shall look for help of two kinds. Obviously we must have subscribers; but these, we are confident, will not be wanting, if we may rely, as we think we can, upon supplies of the right material to fill our pages. News we shall want of course. If, for example, in the course of events some of our teachers leave us, we must tell our friends of the change, and ask them to join in bidding farewell. If new Professors come to us, we shall offer them

welcome and tender allegiance. It will be ours to herald the successes of our fellows at the classes here or at the University, and to trace, as we hope to do, the prosperous career of such as hereafter distinguish themselves in the world. When some of our number go away to the distant Colonies, or into other far countries, they will not forget us if they go away properly impressed with the duty of sending us a report of their observations or of their adventures. The affairs of the Union will necessarily occupy a chief and interesting place in our pages. We shall give a full report of the more important papers read at the meetings of the society, and when our debaters have determined such weighty questions as that spiritualism is a delusion, or have decided whether they do or do not consider it advisable that everyone should be vaccinated, we shall most respectfully record the results of their deliberations, and, as far as possible, provide a summary of the arguments which have influenced the representatives of either view. Lastly, but not least, we expect to hear, as time goes on, of some organisation for promoting games and athletic sports, and any doings of this kind will not be overlooked.

But we must make an effort to give something more than news. If our venture is to be prosperous and permanent, if the life of the College is to be influenced as well as represented, we must use every effort to give our pages something at least of literary quality.

Opportunity is often the only stimulus that is needed to rouse into active life the budding promise of genius, and though there be

"Flowers that prosper in the shade,"

there are none that are not the better for some light and air.

We offer, then, to our fellow-students, past as well as present, opportunity for the exercise of such literary talents as they may believe themselves to possess, and we ask them to confide the results of their efforts to our careful and sympathetic consideration, even should there be lurking doubts of a young Editor's discretion. A man can but do his best, but by continuing to do his best he will certainly learn to do in the future better than the best he could do in the past. Therefore let no student be ashamed or afraid of making an attempt to help the Magazine. He is very certain to write more and write better than he expected, if he will only try. And let it not be supposed that the pages of such a periodical publication as we contemplate can always be wholly occupied with original ideas. Though we think it possible there may be amongst us in this modern House of Solomon some few "pioneers" and "interpreters of nature," most of us, novices and

apprentices as we are, must be content to be mere "depredators" or "compilers," like them of the New Atlantis.

Whilst, however, we invite all to make the experiment, it would be unwise to attempt to conceal from ourselves the fact that it is not given to everyone to write even tolerably. The first and essential condition to success is that the aspiring writer should have something to say; and the second, scarcely less necessary, is that he should know how to say it. Unfortunately, these two qualifications are by no means often combined. Indeed, it would be difficult to determine which of the two is more commonly absent. But with regard to the one we may remember that it is an art which may be cultivated, and to a considerable extent acquired, if we are only willing to give to it the same pains, the same steady, systematic, unwearying labour that we know we must devote to the acquisition of music or painting, or any of the arts. The experience of nearly all writers who have risen to fame points in this direction, and to be convinced of it, it is only necessary to refer to the early productions of such writers as Samuel Johnson, Milton, Pope, or, in our own day, Dickens or George Eliot, and compare them with the later writings of the same authors. If we could see the manuscript of many a poet, or even prose writer, whose richness of imagery, variety of epithet, and vigorous or elegant style we have often admired, we should probably find it full of erasures and corrections, indicating the gradual development of the finished thought. It is thus, as Dr. Johnson said of Milton's manuscript, we learn "how excellence is acquired; what we hope ever to do with ease we may learn first to do with diligence."

The best advice that can be given to beginners is to select for models the best authors, and endeavour to catch something of their spirit, without falling into either imitation or affectation. Before all things, we implore our contributors to be natural. If they would save themselves the pains of fancied neglect, and the Editors the pangs of perplexity, let them make their first essays in private, then burn them and begin again. For there is danger even in the effort to be unaffected. The risk often incurred is that of supposing that vigour and vivacity are represented by "slang." No more serious mistake could be made by a young writer, and yet it is one that is too often made, even by some authors of experience. Phraseology of this sort is vulgar, and, what is worse, it is weak. Those who use it are not uncommonly conscious of this defect, and it is curious to note sometimes how a loose style is

associated with burst of spasmodic bombast, as the writer, reeling like a drunken man, lurches from one extreme to the other. This is the sort of style that has been so gloriously burlesqued by Bret Harte, and though perhaps less outrageous, we will venture to quote a single example taken from a recent book by a well-known writer, which no doubt finds some favour among ladies for the sake of the subject of which it treats. In these free-and-easy pages, thickly bespattered as they are with slangy phrases and inverted commas, the reader may find the wearing of a certain article of dress described as "a tristful holocaust to the Moloch of fashion!" We need only remark in regard to the adjective, that it is ingeniously contrived, and entirely new to the English language. The word holocaust, however, is defined by the dictionary as a *burnt* sacrifice, in which the *whole* of the victim was consumed. Had the writer only known its suggestive meaning, who can tell what fate might have overtaken the book itself?

But writers in the "Mason College Magazine" are, we trust, not likely to fall into absurdities of this kind. If anyone feels tempted to use big words when little ones would do quite as well, let him whisper to himself the warning word "holocaust," and think of its meaning before too late.

Our College is called the Mason Science College. Without staying to enquire what may have been in the mind of the Founder when he gave his sanction to the selection of the name, or venturing to express any opinion as to the wisdom of its adoption, we are reminded by this official title that if our Magazine is to represent or to assist in developing the intellectual life of the place, it will be necessary to give a considerable share of our space to subject connected with the history, the progress, the objects, or the results of scientific work.

In the reaction which is now in full operation against the older and, as some people think, effete systems of learning and education, Science leads the way. We hope and trust and believe that she is leading aright, but there are doubtless many people who would like to be assured that she will continue to do so. The world is richer in material benefits which were unknown to the generations even immediately preceding our own: human labour is saved, and human life is practically lengthened in consequence of the results of the scientific work of the last hundred and fifty years; but it remains for the experience of future generations to determine whether the scientific Englishman of the nineteenth or twentieth

century, is in any sense a nobler creature, humanly speaking, than, say, the unscientific Greek of twenty or more centuries ago.

What do we understand by science? The answer to this question would be given in very different terms by different people. The science of the philosopher is a very different thing from the science of the vulgar, which is nothing more nor less than some form or other of art—a confusion of ideas which probably has been always prevalent. As to the philosophical signification of the word, we prefer to take shelter in our pupilage, and leave the discussion and explanation of this grave question to our Professors. But it affords something both of amusement and instruction to take an occasional dip into mediæval or even later philosophical literature with the objects of learning what at different periods have been the ideas and aims associated with the study of natural phenomena. The problems that puzzled our forefathers have little interest for us, save from the antiquarian point of view. The perpetual motion, the philosopher's stone, magic, and astrology are visions of a past age. Some of the early volumes of the Philosophical Transactions of the Royal Society of London, founded, as every one knows, in the reign of Charles the Second, contain many interesting pieces which illustrate the curious condition of thought in Europe in the seventeenth and eighteenth centuries. These were the days when people permitted themselves all sorts of extravagant visions of restoring youth, and even of extending life indefinitely. Given once the idea of curing the base metals of the diseases with which they were supposed to be afflicted, and transforming them into gold by means of the philosopher's stone, it was no great stretch of imagination to suppose it possible by the same agency to restore health to human bodies. But this was an old notion, dating probably from the twelfth or thirteenth century. In the early days of the Royal Society transfusion of blood was much relied upon, and in these old volumes we read of countless experiments of this kind, most of which appear rather cruel, and certainly seem to have been fruitless and misleading. It is a singular fact that the best established cases of extreme longevity occurred about this time, and it seems not improbable that the thoughts of physicians and philosophers may have been specially attracted to the question of prolonging life by such examples as the old Countess of Desmond, Henry Jenkins, Thomas Parr, and others who, about the seventeenth century, attained to years since unheard of. Roger Bacon's remarkable book on the "Cure of Old

Age," written in the thirteenth century, was probably read a good deal in these times. At least two new editions of it were published, one in Latin in 1590, another in English in 1683. For the precepts to be observed and the remedies to be applied we must refer to the book itself, which the reader will find sufficiently tedious by reason of the obscure and mystical character of the language. The Latin edition is interesting as having not improbably supplied ths words of Hamlet to Polonius:—"The satirical rogue says here that old men have grey beards, that their faces are wrinkled, their eyes purging thick amber and plum-tree gum, and that they have a plentiful lack of wit, together with most weak hams." These "slanders," as Hamlet calls them, are so nearly in the language of Roger Bacon that it can hardly be an accidental coincidence.

Here is another example of a different kind, but one which ought to convey a hint to those of our own day who rejoice in opposing "common sense," to scientific evidence. "Difficiles Nugæ; or, Observations touching the Torricelian Experiment and the Various Solutions of the Same, especially touching the Weight and Elasticity of the Ayr," is the title of a book published in London in 1675. The question why the mercury is sustained in a barometer is not answered as we answer it, by appealing to the pressure of the air. This explanation, on the contrary, is regarded by the author as ridiculous. He says, "The common appearances of the World, so far as they are obvious to our common senses, contradicts this immense, nay, or any considerable Gravitation of the Atmosphere upon subjected Bodies. It is hardly conceptible how Birds could raise themselves upon their wings and keep themselves in free Ayr if a burthen, perchance, of above 1000 pound weight should lie upon their Wings and Bodies; it were not possible for me to breathe, to walk, to stand upon my Feet. If at every time I open my Mouth, a Column of Ayr of 300 pound weight pressing into it, it would tear open the valves of my Larinx and blow up my Stomach and Intrals like a Bladder, and break my Ribs, if it had an admission; and if it had not the circumjacent pressure of the Ayr would press me to death. These and the like instances render this prodigious 'Gravitation of the Ayr' incredible to us vulgar Souls that are apt to credit our Senses."

It will, however, hardly be safe to assume that this nineteenth century of ours has shaken itself free from folly, extravagance, and absurdity in matters which ought to be brought within the

domain of positive science. For though the philosophers of our day are no longer guilty of the presumption of "fetching doune the Planets and damning them as Criminals to certaine Mettals," the future historian of our times will be obliged to conclude that nigh two hundred years of boasted enlightenment in experimental philosophy has not sufficed to clear away all the the superstitions of our forefathers. So long as our leading newspapers condescend to the discussion of such matters as the search for water by the divining rod, as some of them did only a few weeks ago, it is not surprising that fortune-tellers should still find dupes. It is time, indeed, that some little science was taught in our elementary schools; and if an editor or two could be compelled to seek instruction in first principles, it would be all the better for the world.

THE TRANSIT OF VENUS.

Although many good discussions of this phenomenon are easily obtainable, yet they are usually clothed in such technical language that it is hoped an attempt to describe it in somewhat simpler language, and to give an idea how the observations are used for determining the sun's distance, may not be unwelcome to some of the readers of this Magazine.

Ptolemy, a celebrated Egyptian, considered that the Earth was stationary, and that the sun and the planets described orbits the centres of which, at the same time, revolved round the earth. We now know that the earth and all the planets revolve round the sun, Venus and Mercury being nearer to the sun than the Earth, and the rest at a greater distance. The laws of the motions of the planets were first discovered by Kepler. His third law states that the "squares of the times of revolution are in proportion to the cubes of their mean distances from the sun." Now the time of revolution of Venus can be easily determined from observation, aud the application of the above law at once gives the ratio of the distances of the Earth and Venus from the sun.

The plane of the orbit of Venus is inclined at a small angle to that of the Earth. These two planes intersect along a right line passing through the sun; this line is called the line of nodes. Like all the other planets, Venus is only seen by the light reflected from her surface. If she come between the Earth and the sun the illuminated side is turned from us, and she is invisible, unless she be in a direct line between the Earth and the sun, when she is seen as a small black spot on the face of that luminary. The passage of this black spot across the disc of the sun constitutes the transit. It is easily seen that no transit can occur unless a right line drawn from the Earth to Venus strike the sun, and this can only occur when both Venus and the Earth are near the line of nodes at the time of conjunction.

Let us suppose that the expected time of the transit is at hand. Two stations are selected, say, on the same meridian—one in the northern hemisphere and the other in the southern, their distance apart in a direct line (through the earth, not on the surface) is determined. Observers at these positions determine accurately either the time at which the planet enters on the disc of the sun, or the time at which it leaves it, or, if possible, both. The planet will appear to both observers to travel across the disc of the sun in a straight line, but the line observed in the northern hemisphere will be different from that observed in the southern. If we suppose the transit to occur over the upper half of the sun's disc, it is easily seen that to an observer in the northern hemisphere Venus will appear to be further from the upper limb of the sun than she will appear in the southern hemisphere, and the line described in the former case will be longer than that described in the latter. If, from the station in the northern hemisphere, we imagine a straight line to be drawn through the centre of Venus to the middle of the lower line on the disc of the sun, and a similar line from the southern station to the middle of the upper line, we at once see, since we have two similar triangles with the centre of Venus for apex, that the distance of the two stations on the Earth will have to the distance between the two lines on the disc of the sun the same ratio as the distance of the Earth from Venus has to the distance of Venus from the sun. This ratio is determined, as previously explained, by the application of Kepler's third law; and since the distance between the two stations on the Earth is known, the perpendicular distance between the two lines traced on the sun's disc is also known. The ratio of this distance to the sun's radius is then easily determined, by a very simple formula, from the observations of the times of ingress or egress, or both, at the two stations. The radius of the sun is thus determined in miles. If a disc an inch in diameter—say a halfpenny—be held at a distance of 108 inches from the eye, and directly between the eye and the sun, it will be found that the disc just conceals the sun. If the disc be two inches in diameter it must be removed to twice the distance, and so on. We thus see that the ratio of the distance of the halfpenny from the eye to its diameter is the same as that of the distance of the sun to its diameter.

We have already determined the diameter of the sun, and we at once get its distance from the earth by multiplying by this ratio.

Of course, it is scarcely possible to obtain two suitable stations on the same meridian, but corrections for the stations being on different meridians, as well as for the movement of the earth during the transit, and for other variables are easily made.

JOHN T. RILEY.

THE LIBRARY.

THE Mason College Library was opened on the 24th of November, 1880, so that when these words are printed the Library will be almost two years and two months old. It already contains close upon 13,000 volumes, and it has been thought that some account of its management and of the character of the books upon its shelves may be interesting to the readers of our magazine. The books cover the whole range of the Sciences, the Classics, and English Letters. The following is a list of the subjects under which they are arranged:—Mathematics, Physics, Chemistry, Physiology, Zoology and Comparative Anatomy, Geology, Botany, Engineering, Medicine, Latin, Greek, French, German, Comparative Philology, English Language and Literature, Philosophy, Logic and History, Plates and Atlases. There is also a compartment reserved for text-books alone, where the student will find all the best publications and the latest examination helps. The idea of the Committee in the selection of books seems to have been to provide the student with everything he can need, and especially with those books that he might not be able to procure elsewhere. Hence, in the compartment reserved for English Letters we do not find such works as those of Hume, Macaulay, and Lingard, as everybody can have access to them in other ways, but all such books as are necessary to a knowledge of the sources and functions of English letters are on the shelves, as well as some particularly rare and valuable volumes which could not be obtained by the ordinary student. Such are the Transactions of the Philological Society, the Camden Society, the Early English Text Society, the Royal Historical Society, and the histories of Freeman, Stubbs, and Green.

The Library is essentially a student's library, and the books in it have been chosen on account of their direct educational value. Hence, although it certainly contains some rare old volumes of great value, such as "Agricola on the Working of Iron," and the "Corpus Inscriptionum Graecarum," etc., yet, it is not a library that a bibliophile would look on as specially interesting. It is intended to meet the needs of those who have a love of serious studies. As a rule, the books are in the latest edition, unless some special interest attaches to an earlier issue, as is the case with the edition we have of Linnaeus' "Nature."

An examination of the shelves of each compartment will show that the books have been obtained in accordance with the following ideas:—We find first special dictionaries and a special history of the subject; then, if the subject is a science, serials showing its current condition, year books showing its annual progress, monographs on special divisions of the science, and all the standard text-books. This arrangement runs through the whole of the Library, every section being singularly complete. The sub-sections

of Geology, the Bibliography, and the Philology might be mentioned as being particularly well represented. There is not space to give the titles, of particularly interesting books in these and other divisions. I can only recommend the reader to go and look for himself if he has not already done so.

Although, as has been said, the books have been chosen on account of their educational value, and are not specially interesting from an antiquarian point of view, there are some that do possess a peculiar interest, because they have been the property of great scholars such as Owen and Gould, and contain their autographs. There are complete editions, valuable by reason of their completness, of such important scientific periodicals as "Poggendroff's Annalen," "Liebig's Annalen," the "Annales de Chimie et de Physique," the "Transactions of the Royal Society," the "Comptes Rendus" of the French Academy, the publications of the Smithsonian Institution, and others. Such books as these are becoming rarer and more valuable every year, partly in consequence of the rapid growth of science colleges in this and other countries, resulting in an increased demand for scientific literature, and partly because the number of copies of transactions printed during the first years of the life of many of these learned societies was exceedingly small. Complete editions of the transactions of some societies may be said to be as truly unique as a masterpiece by Rafael or Titian. The speed with which the Library has been filled is probably owing to a true apprehension of these facts. In many cases unless a book is secured at once it will be lost for ever.

Some of the characteristic points of the Library have already been mentioned. It is particularly rich in elaborate monographs, anatomical plates and atlases, and in serials which serve the student as an index to the present condition of all the sections of knowledge.

Before bringing this article to a close, it may be interesting to librarians and to students of other colleges if I draw special attention to one of our rules which illustrates in a remarkable manner the desire of the Committee to make access to the books as free as possible. Even in private book societies and the best libraries books are constantly stolen and lost, and it might have been supposed that many precautions would be necessary to prevent the occurrence of this at Mason College. However, the Library Committee seem to have felt that it might be better to run these risks and to go to the expense of placing fresh copies on the shelves rather than place the slightest obstacle in the way of the free use of the Library by all the students. The arrangement they have made is one that we fully appreciate. When a student needs a book, he is free to take down volume after volume until he hits upon the author whose style and treatment exactly meet his requirements. If he had to go through the formality of entering his name in a book, or of making application to the librarian, this free choice would be

practically impossible, for he would hardly like to trouble the librarian more than once or twice. I am very glad to learn from the librarian that the generous confidence shown by the Committee has not been abused, and that since the opening of the Library only four books have been missing, and that they have been found and returned to their places. The only restriction laid upon the readers is that they are requested to put their books on a table when they have finished with them, and not to return them to their places. May I venture to call the attention of students to this rule. As our enjoyment of the Library is left so free, we are bound in honour to be very punctilious in the observance of the few regulations that have been drawn up for our use.

The Library is open to all students of the College, to the Professors of Queen's College and of Mason College, and to all such real students of science and letters as shall from time to time obtain the permission of the Committee.

As regards the arrangement of the books, they suggest their own classification, being arranged according to subjects, and not, as I have heard is sometimes the case, according to authors, or, worse still, in order of size.

The actual construction of the Library can hardly be called perfect. It is lighted from the sides instead of from the top; the tables are arranged along the sides of the room, and the bookcases are down the middle, thus rendering supervision rather difficult. The lady students certainly have nothing to complain of as regards arrangements for reading. They are provided with two rooms, one of which is reserved for silent study; and they are allowed the privilege of taking books out of the Library, which they can read in silence or consult over together. The men are not so fortunate. Silence is obligatory in the Library, and though this is a necessary rule, it is equally desirable to have a room where conversation and a free interchange of ideas may take place. The students would feel very grateful to the Council if they could see their way towards providing them with such a room.

The Library is presided over by Mr. Allport and his assistant, Mr. Cope; and the students are very much indebted to both these gentlemen for the rare ability and ready courtesy with which they discharge their duties. I have specially to acknowledge Mr. Allport's kindness in supplying me with many facts for this article.

G. D.

THE MASON COLLEGE UNION.

A Sketch.

To those who are interested in the Union, either as members or from an outside point of view, it may be of interest to learn how, why, and when this society, which has proved a source of so much pleasure and benefit to all concerned, was started.

During the first year of the College, when all was new and strange, when daily additions were being made to the building, reminding one forcibly of the work already accomplished, and the ideal still to be fully wrought out; and when our honoured founder was still with us, taking interest in all that went on, it was but natural for a feeling of deep gratitude and reverence to be uppermost in the minds of those who were the first students at his College.

The desire that this feeling might find expression became known to Sir Josiah Mason, and gave rise to a suggestion made by Mr. Cullis, that an address should be presented to the Bailiff on his birthday, which should be signed by all the students. The proposal was allowed to be made after several of the lectures (for there were then no other means by which any united effort amongst the students could be organised), and was of course agreed to with pleasure. Accordingly, an illuminated address, to which was appended the signatures of the greater number of the students, was prepared, and presented by the Trustees on February 23rd, 1881. This common bond of gratitude to our founder proved to be the link which first brought the students together, or, in other words, *focussed* the wishes and feelings of those who, until then, had had no opportunity of co-operating or of comparing their thoughts and plans.

It was soon realised that more bonds, doubtless, existed between students who were working under the same roof and with a common aim, and that mutual benefit would ensue if the results of thought and individual study or research could be shared.

With the approval of the Professors, a meeting of students was called on February 24th, 1881, at which it was proposed: "That the regular students of the Mason Science College think it desirable to form an association for social and intellectual intercourse." A good deal of discussion followed, the result of which was that an amendment proposing to omit the words "for social and intellectual intercourse" was carried. Thus, the resolution finally passed declared "That the regular students of the Mason Science College think it desirable to form an association." A committee of fifteen students was then appointed to consider the matter and go into details.

COMMITTEE:

Mr. Cullis, *Chairman.* Mr. Barwise, *Secretary.*

Miss Albright.	Mr. Dewes.	Mr. Sadler.
Mr. Addenbrooke.	Miss Hadley.	Mr. Smithson.
Mr. Barrowdale.	Miss James.	Miss Sturge.
Mr. Barratt.	Miss Jordan	Mr. Webb.
Mr. Blake.		

This committee, after obtaining the cordial consent of the Trustees to the formation of the proposed society, proceeded to discuss its constitution, aims, and method of management. The energy of the secretary, who obtained information regarding similar institutions (Owens College in particular) did much to simplify and aid the work.

Many were the doubts and difficulties, both real and imaginary, which were raised, and either dealt with or left for time to solve. Amongst these, the name and objects of the society called for much consideration. Finally, the rules, in substantially the same form as they now stand, were submitted to a meeting of students held on March 8th, at which Professor Bridge kindly took the chair. One or two amendments were discussed and voted upon, and then it was formally resolved to form the "Mason College Union" and adopt the proposed rules. After this a Committee of Management was elected, of which, Mr. Cullis was appointed chairman, Mr. Barwise secretary, and Miss Albright treasurer.

In the summer term the regular Union meetings began.

They were as follows :—

Lecture "The Moon," by Mr. S. H. Parkes.

Debate: "That Classics are superior to Science as a Means of Culture."

Lecture on "Heraldry," by Mr. Wright Wilson, M.R.C.S.

Paper on "Macbeth," by Miss Hadley.

Paper on "Flowers," by Mr. Watts.

Shakespearean Reading—"Macbeth."

Thus ended the first series of Union meetings. They had been successful; indeed, so much so as to convince those doubters (of whom the present writer was one), who either failed to see the need of the Union, or else considered its formation to be premature, that they were mistaken, and so long as the ideal aimed at was kept in view, and every member bore in mind his or her responsibility, the society could not be unsuccessful, but useful and helpful to no small degree.

This opinion was confirmed by the success of the meetings held during the following session, 1881-2. At a special general meeting, Dr. Tilden addressed the members, and alluded to the use of "discussion" as helping in the formation of clear and correct opinions.

The following papers and discussions formed the programme through the year:—

"Holiday Notes," by Miss Albright, Miss I. C. Evans, Miss Southall, Mr. Carter, Mr. Cullis, Mr. Purslow, Mr. Williams, B.Sc.

Paper on "The Frog," by Mr. Barwise.

Paper on "Political Economy," by Mr. Barrowdale.

Paper on "The Life of Schiele," by Mr. Watts.

Debate: "That, in the opinion of this meeting, the benefits resulting from the practice of Vivisection outweigh its necessary evils."

Paper on "Various kinds of Silica," by Mr. Allport.

Paper on "Waste of Time," by Miss I. C. Evans.

Paper on "Colours of Flowers," by Miss Hadley.

Sketch of "Student Life in Germany," by Mr. Morris, PH.D.

Paper on "Electricity," by Mr. Carter.

Debate: "That, in the opinion of this meeting, an Hereditary House of Lords ought to be abolished."

Paper on "Egoism and Altruism," by Mr. Greatheed.

Shakespearean Reading, "As you Like It."

Debate: "That Art declines as Science advances."

Paper on "The Life and Writings of E. A. Poe," by Mr. Ogle.

Paper on "Examinations," by Mr. Barratt.

Perhaps the best way in which to form an estimation of the importance and value of the Union is to imagine its non-existence, and the blank there would be without it. In a college, where so much *scattered* life and thought exists, a centralising force is necessary. The Union aims to supply this; and is, moreover, ready to lend its strength and influence for the furthering of feasible plans, and it may be, for the redress of possible grievances. Only those who are members can grasp the position it takes in the College, and understand what a source of pleasure and gain it is from many points of view, of which by no means the least is that we meet our Professors outside the lecture room.

Lastly, we come to consider the future. It is bright, and will remain so as long as the efforts of our officers continue to be shared by the members on whose behalf they are made, and on whom, as the society increases in numbers, more and more responsibility *does* undoubtedly devolve.

We need to remember that there *is* a future to be either *made* or *marred*.

Private prejudices and cliques usually do the marring; but from these we rejoice to be singularly free. Therefore, we may confidently look to going slowly but surely forward, possibly falling into mistakes, but learning therefrom how to work out that future which we have all so much at heart.

M. D. STURGE.

MUSICAL EVENING IN THE UNION.

Some members of the Union having expressed an opinion that it would be pleasant to devote an evening to music, the General Committee met to consider this question, and appointed M. D. Albright, I. C. Evans, W. Greatheed, and H. Ledsam members of a Sub-committee to consider the best way of carrying out this proposal, and to report the result of their enquiries to the General Committee. M. D. Albright and I. C. Evans being obliged to withdraw from the Sub-committee: A. Hadley, G. Southall, and M. Sturge were appointed in their places.

In accordance with the directions of the General Committee, the Sub-committee waited upon the bailiff to submit their proposal to him. The bailiff kindly granted the use of the Examination Hall, but said that he saw grave objections to a sale of tickets on the evening of the concert, and at the same time, made a kind offer to provide programmes of the performance. In consequence of the bailiff's kindness, and of the generous offer of Dr. Tilden to provide a piano for the evening, the Sub-committee withdrew their application to the Council for permission to charge for admission to the concert.

The first rehearsal of the part-songs selected for the concert, took place in Frederick Road, on Monday, December 10th, by the kind invitation of Mrs. Sturge. Mr. A. R. Gaul, who has taken a great interest in this movement, kindly offered to conduct the first rehearsal; he has renewed this offer, and there is no doubt that, under his able tuition a first-rate programme will be rendered.

The Committee have fixed the date of the concert for January 26th, 1883, and trust that the members of the College will render the evening a success by being present themselves, and by making the date of the concert known among their friends.

A full report of the proceedings will be sent to the Magazine.

GERTRUDE E. SOUTHALL,
January, 1883. Secretary to the Sub-committee.

The secretaries hope to send an account of the proceedings of the society to the magazine every month, and they think a short resumé of the meetings held during last term may be interesting on the occasion of the first appearance of the magazine, and may help to induce more of the students to become members of the Union. The following is the programme of last session:—

October 13th.—Holiday Notes were read by A. Jordan, L. Bayfield, L. Dale, A. E. Hart, I. C. Evans, J. S. Smithson, G. Heaton, C. C. W. Naden, and Mrs. Bracey.

October 27th.—W. Greatheed read a paper on Life Work taken from a biological standpoint.

November 3rd.—Annual General Meeting.

November 10th.—Debate: Subject, "That the permanent occupation of Egypt by England would be beneficial to both nations."

November 24th.—Papers were read on "The last three Kings of Wales," by T. A. Jenkyn-Brown, and "Physical Culture," by F. J. Cullis.

December 8th.—Debate: Subject, "That Spiritualism is a delusion."

December 15th.—Debate: Subject, "That compulsory public Vaccination should be abolished."

A wish having been expressed by a large number of members that debates should occupy a more prominent place in the programme, it was decided by the Committee to hold fortnightly special meetings for the purpose of debate during the next term, and should this experiment prove successful they hope in the future to hold weekly meetings.

The Committee feel that they have great cause for satisfaction in the progress that the Union has made during the past session, and that they are amply justified in attempting to enlarge the field of their operations, hoping by this means to raise the public spirit of the students and to add to the interest of college life. With this object in view, a dramatic reading and a concert have been added to next term's programme. In addition to this the Committee have ventured to start a magazine which they hope will receive the cordial support of every member of the Union.

We regret to say that during last term our esteemed secretary, J. S. Smithson, owing to business engagements, was obliged to resign the office of secretary, and E. F. Eliot was elected to fill the vacant post; also, that owing to unexpected absence from Birmingham for several months, M. D. Albright, the honorary treasurer, was also obliged to resign, and C. C. W. Naden was appointed to fill her place.

E. F. Eliot,
E. A. James, } Honorary Secretaries.

NOTICE.

The Magazine will be published every month except April, August, and September.

It will be published at Cornish Brother's, 37, New Street, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 4s. 6d., or 5s. post free.

Subscribers are requested to give in their names at once to the Editors, or to any Member of the Union Committee.

Subscriptions to be paid (by postal order, if possible), to one of the Editors.

It is under the management of an Editor and Sub-Editor, who will be glad to receive articles and papers, etc., from all members of the College. All manuscripts will be returned within two months after they are sent in.

PRESENTATION TO PROFESSOR BODINGTON.

Last term was marked by the first change which has taken place since the establishment of this College in the Professorial Staff.

Rather more than a year ago the chair of Classics, and also those of Literature, of English, and of German were instituted, and Professor Bodington accepted the chair of Classics.

A year afterwards Professor Bodington was offered the post of Principal and Professor of Classics of the Yorkshire College, Leeds. Although he has been here so short a time, the students of Mason College could hardly expect him to refuse a position of such honour, and consequently we were not surprised to hear that he had accepted the post.

The students are very sorry indeed to lose Professor Bodington, who has been a friend as well as a teacher; yet at the same time they are very glad that such an honour has been paid to him.

It was suggested by some of the members of his classes to make a present to Professor Bodington on his leaving the College. At first it was suggested that the present should come only from those who had attended the Latin and Greek classes, but it was finally decided that it should come from students of the College as a whole. A sum of about £10 was collected, and with this a committee, chosen by the Students' Union, was appointed "to get something suitable." This committee found out that Professor Bodington would prefer books to any other present, and also that there were certain books he was especially wanting at the time. So the following volumes were bought, bound in calf: Burn's "Rome and the Campagna." Bernhardy's "Greek Literature," and Wordsworth's "Greece."

On December 14th, 1882, a meeting of the students was called, to present Professor Bodington with these books. Mr. H. Ledsam was in the chair, and opened the meeting with a few suitable remarks, saying how much the loss of Mr. Bodington would be felt, not only by the students as the loss of a distinguished professor, but also by them as a real friend.

Miss Lillie Dale was then called upon to make the presentation: She said: "Mr. Bodington, I have the honour, on behalf of the Students of Mason College, to present you with these few volumes as an expression of our high appreciation, not only of the distinguished ability with which you have discharged the duties of your chair, but also of the great consideration and courtesy which you have always shown to all your pupils." After expressing the wishes of the students for his happiness and success at Leeds, she presented him with the books.

Mr. Cooper then spoke, saying what a loss, not only the College, but also the town would sustain in Professor Bodington's departure.

Miss Edwards also spoke, saying that she hoped Professor Bodington would not forget his pupils here, but would often come and pay them visits.

Professor Bodington, in replying, said, that it was very hard to speak on an occasion like the present, when his heart was very full. He thanked the students from the bottom of his heart for the present they had made him. He referred to the past year, as being one of the brightest spots in his life. He reminded his students of a saying of an ancient teacher, "My pupils are my wings;" and went on to say that he had found this to be true at Mason College, as all his pupils had taken a great interest in their studies, without which it would have been impossible for him to have passed such a successful year as he has done. After again thanking the students, and expressing many kind wishes for their future success, he asked to be allowed to say good-bye to all those who were present.

The Chairman then declared the meeting closed. And the students on leaving shook hands with Professor Bodington.

Although the students who have attended Mr. Bodington's classes most sincerely regret their loss, at the same time they are to be congratulated on the appointment of such an excellent professor to the chair of Classics; and the students most heartily welcome Professor Sonnenschein to Mason College.

L. D.

HERCULES.

This fruitage from the far Hesperides
I bring to great Eurystheus, feared and hated,
Whom I, his slave, nor hate nor fear—my fated
My full reward, he hath no power to seize,
Nor is it bought with golden gauds like these.
I seek supreme delights, untold, undated;
Of joys wherewith these kings of men are sated
Right little reeks the Jove-born Hercules.
I live content to bear my destined burden,
To toil unthanked, unhonoured, void of guerdon,
To serve a tyrant's will through lonely years;
That, neither shunning pain nor scorning pleasure,
My strenuous soul may win Olympian leisure,
And dwell in peace amongst the Gods, my peers.

CONSTANCE C. W. NADEN.

OUR CONTEMPORAIES.

We acknowledge with thanks the receipt of *Laurel Leaves*, *The Midland Institute Magazine*, *King Edward's School Chronicle*, and *The Owens College Magazine*.

CORRESPONDENCE.

We are sorry that we have not space to insert a letter from "A Regular Attendant at the Union," which will appear next month.—ED.

SUPERSTITIONS.

To the Editors of the *Mason College Magazine.*

Dear Sir,—Can any of your correspondents throw any light on the origin of the following superstitions? That it is unlucky to spill salt; to look at the new moon through glass; to walk under a ladder; to do anything of importance on Friday.

I am, yours truly, INQUIRER.

To the Editors of the *Mason College Magazine.*

The Mason College, Dec. 14th,

Sir,—Allow me to call your attention to the following facts:—The Physiology list was posted on Thursday, Dec. 7th; the names of the students were classed in order of merit; the marks were published, and the list signed by the Professor.

Within the following week no less than *six* alterations were scrawled on the list—four in pencil and two in ink. In addition to this, a remark was written on it in pencil, and though roughly scratched through remains legible.

No authority whatever was shewn for these alterations, two of which substantially alter the position of students in the list.

May I ask whether it is consistent with the official character of a College Examination List that it should be tampered with in this way?

Yours etc., ASTONISHMENT.

[We are very pleased to see some notice has been taken about the writing on the Examination Lists. Would not it be an advantage if there was a glass case in which Examination Lists could be posted?—ED.]

The Hall, Harborne.

Dear Sir,—Will you kindly insert the following in the first number of your magazine?

Yours truly, A. E. HART.

Dec. 16th, 1882.

THE FENCING CLUB.

Many of the students do not seem to be aware of the formation of this club. Its objects are fencing and boxing. All wishing to join should communicate with the secretary. Entrance fee 2s. 6d. Subscription 6d. per term. A. E. Hart, Hon. Sec.

THE COLLEGE LIBRARY.

December, 1882.

Dear Sir, — Students addicted to analogy will probably have thought of the library as the brain of the College. The brain is the part of the body where individual as well as ancestral experience is registered and organised, and on the registered experience depend not only the conception of any moment, but also the action of the lifetime.

So the daily or sessional work done in each lecture room and laboratory (the conceptions of the moment), and the scope and intention of the College (the action of the lifetime), almost entirely depend on a well-supplied, a well-selected, and a well-arranged library. I appeal to each Professor to say whether the destruction or removal of the library would not practically paralyse his department.

A college does not begin life from a single cell, like an individual. Rather, it leaps forth as a full-grown Minerva, largely armed against ignorance, and with a brain competent to direct its weapons.

For this needful centre of life we are almost entirely indebted to one whose gift has had at least three sides:—

1. A vast expenditure in money.
2. A daily amount of personal overlooking.
3. Hourly or scarcely intermittent expenditure of nervous energy, a "long-continued, patient intending of the mind," as Newton and Huxley phrase it ("Science and Culture," p. 59); perhaps the most valuable part of the whole gift.

For all this there is, so far as I know, only one return, and that is an open avowal by all who have been benefited, of the nobility of the plan and the ability of the execution.

If, sir, one such avowal can be registered and embodied in the first number of our Magazine it will not have lived in vain, even if (most ludicrous of hypotheses!) we should never see a second issue.

Yours faithfully, W. G.

P.S.—One other method of return or gratitude occurs to me—viz., to promote in all possible ways the utility

of the gift. Now, much talking must go on in the library because there is no central common room for students, and it is absolutely necessary for students to confer over books, plates, and Union business. The men's common room—an adjunct to a carpenter's shop—is between sixty and seventy paces from the library door, which may be termed the centre of the building. Could not one of the two libraries be set apart for absolute silence? For want of this necessary condition to systematic reading, I know that several students stay away, and that many more are daily hindered.

SCIENTIFIC SOCIETIES.

REPORT FROM THE PHYSICAL LABORATORY.

THE number of students receiving instruction in this Laboratory shows a satisfactory increase upon the number attending during the winter term of last session.

In the lower junior class there are 17 students, in the higher junior 6, and in the Laboratory course 5; making a total of 28 attending from two to nine hours weekly.

Next term it is proposed to introduce an entirely new course on the "Recent Application of Electricity," in view of the rapid strides this subject has, within the last two or three years, made from a commercial point of view. The course will consist of about ten lectures and demonstrations, commencing on Wednesday, January 17th, 1883. A short account will be given at each lesson of the principles involved in the experiments; and the members of the class will perform the experiments for themselves, under the superintendence of the Professor.

The syllabus includes, in addition to the ordinary electrical measurements, the details and use of the various galvanometers and other apparatus for determining the currents and electromotive forces in electric lighting, dynamo-testing, heating power of the current in the lamps, etc; resistance of incandescent lamps, hot and cold, and measurement of light given; accumulators, and other important apparatus.

The detailed syllabus can be obtained on application in the Physical Laboratory.

J. J. RILEY.

PHYSIOLOGICAL DEPARTMENT.

The first of a series of three examinations has been held in this department, and the result was satisfactory. The number of names on the class roll is 87, and the number of names on the Examination list is 67—showing that nearly all the Students attending the class went in for the examination. It is also satisfactory to see that half the names appear in the first and second classes.

As regard the order and discipline of the class, it is extremely satisfactory. The class is a very large one, and contain a large number of Medical Students.

Those interested in Mason College, will be pleased to hear that Professor Haycraft is completing a test for uric acid by which a quantitative analysis can be made in about fifteen minutes.

CHARLES GREENE.

A TEA TALE.

1 O teapot ! in our hours of ease,
How rarely dost thou fail to please;
And when quadratics wring the brow
A ministering angel thou !

2 Thus sang the maids on science bent,
While on their various tasks intent.
The thought was father to the deed,
Which very soon supplied the need.

3 Each Art and Science did her share :
A teapot first, of earthenware,
Staid "Mathematics" did present,
Or, more correctly, only lent.

4 The locomotive's primal form
From "Physics" gained a welcome warm ;
And spirit agency, (denied
Existence even) heat supplied.

5 A tray of Japanesy sort
Æsthetic "English Compos" brought,
But artist effort reached its height
In "Latin's" kettle-holder bright.

6 The-cream jug was a graceful jar
"Zoology" had brought from far ;
And every day, as dairymaid,
The cream within it she conveyed.

7 The cups were every shape and size
That chance or purpose could devise;
But one and all the self-same hue,
And that was like the maidens'—blue.

8 For washing up a towel wide
Did "Physiology" provide;
"Biology" that towel stole
To carry home a cray-fish whole !

9 And now, while knowledge is pursued,
The cup that cheers is gaily brewed ;
And listening with attention fixed,
The talk one hears is rather mixed :—

10 "The tray is hardly"—"M K square"—
"Surds"—"Cream-jug"—"Atmospheric air"—
"With Chlorophyll"—"Another cup"—
"In Aqua Regia"—"I'll wash up."

I. C. I. C. I. E.

COLLEGE INTELLIGENCE.

UNIVERSITY OF LONDON.

RECENT EXAMINATIONS FOR DEGREES.

B.A.

Lean, Charles Albert. *First Division.*

B.Sc.

Riley, John Thomas. *First Division.*
Williams, Walter Collingwood. *First Division.*
Barrowdale, Samuel. *Second Division.*

EXAMINATION FOR HONOURS AT B.Sc.

Riley, John Thomas. *First in 1st Class Physics.*

Williams, Walter Collingwood. *First in 2nd Class Chemistry and First in 3rd Class Physics.*

COLLEGE EXAMINATIONS.

(The First Classes only in the College Examinations are printed.)

PHYSIOLOGY CLASS LIST.

CLASS I.

Melsom, G. H.
Blake, J. E. H.
Naden, C.
Jordan, W. R.
Evans, I. C.
Taylor, L. A.
Barwise, S.
Eliot, E. F.
Barratt, J. O. W.
Fowler, J. W.
Hill, A. W.
Wall, J. B.

There were 20 Names in the Second Class.
There were 35 Names in the Third Class.

MATHEMATICAL (PURE) CLASS LIST.

(1) LOWER JUNIOR CLASS.

First Division.

Brooks, M.
Manton, A. W.
Ward, C. F. M.

(2) JUNIOR CLASS.

No Division I.

Second Division.

Bodington, A. E.
Evans, I. C.
Houseman, R. H.

ELEMENTARY CHEMISTRY.

CLASS I.

Staley, B. } Equal.
Ward, C. F. M. }
Lloyd, E.

HIGHER JUNIOR PHYSICS.

CLASS I.

Houseman, R. H.
Sadler, E. A.
Silvester, H.

GEOLOGICAL DEPARTMENT.

Sylvester. H.
Dixon, C. W.
Marten, H. B.
Myers, L.
Houseman, R. H.

THE PRACTICAL CLASS.

Dixon, C. W.
Marten, H. B.
Houseman, R. H.
Myers, L.
Sylvester, H.

LOWER JUNIOR PHYSICS.

Barrow, L.
Manton, A. W.
Sunderland, O.
Wright, E. G.

ENGINEERING.

CLASS I. DRAWING.

Manton, A. W.
Gordon. W.
Barrow, L.
Hickman, E.
Demuth, L. H.

CLASS I. PRACTICE WITH INSTRUMENTS.

Manton, A. W.
Barrow, L.
Gordon, W.

CLASS II.

DESIGN OF EXPERIMENTAL APPARATUS.

Forbes, D. M.
Myers, L.
Dixon, C. W.
Marten, H. B.
Walker, J. S.
Houseman, R. H.

REVIEW OF BOOKS.

RICHARD BARNFIELD. POEMS, 1594-98, Edited by Edward Arber, Hon. Fellow King's College, London, F.S.A., etc.; Professor of English Language and Literature at Mason Science College, Birmingham.

This little volume will be a valuable addition to the Library of the Student of English literature. It is the first public reprint of Barnfield's Poems that has ever been made, the editions which have preceded it having been limited to some forty or fifty copies each. During Barnfield's lifetime four editions of his poems were published, and of these, only six copies in all are known to exist. Professor Arber tells us that it is probaby owing to this extraordinary scarcity of the original copies that Barnfield has made so little impression on posterity. In the introduction to the poems, Mr. Arber gives us a careful summary of the reasons for supposing Barnfield, and not Shakespeare, to be the author of the sonnet "If Musique and Sweet Poetrie Agree," and the ode "As it fell upon a day." Mr. Collier has advocated, first, the Barnfield authorship of these poems, and then that of Shakespeare. The publication of this volume will enable the student to judge for himself between the arguments for and against the Barnfield authorship. Warton, in his History of English Poetry, says "A collected Edition of Barnfield's Surviving Works is a want in English literature, and would only form an appropriate and deserved tribute to the genius of so graceful and so neglected a poet. . . . No author, whom we could name, has fairer pretensions to be regarded as a writer of genuine untainted vernacular English." Mr. Arber has met this want by his admirable Edition of Barnfield's Poems.

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PRICE SIXPENCE.

Vol. I. No. 2.

THE Mason College Magazine



EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

FEBRUARY, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

"JOURNAL" WORKS, TYP.

FEBRUARY, 1883.

Thursday, 15.—
Friday, 16.—Union Meeting at 5 o'clock. A Paper on "Fanaticism," by C. Nadeer;
Saturday, 17.— [and on "The Union, a Sociological Study," by W. Greathead.

SUNDAY, 18.—
Monday, 19.—
Tuesday, 20.—
Wednesday, 21.—The Union Committee meet at 5 o'clock.
Thursday, 22.—
Friday, 23.—The Founder's Birthday. College closed.
Saturday, 24.—

SUNDAY, 25.—
Monday, 26.—
Tuesday, 27.—
Wednesday, 28.—The Union Committee meet at 5 o'clock.

MARCH.

Thursday, 1.—
Friday, 2.—Union Meeting at 5. A Paper on "The Teaching of Geography,"
Saturday, 3.— by G. Dale; and on "Hannibal," by C. Tunstall.

SUNDAY, 4.—
Monday, 5.—
Tuesday, 6.—
Wednesday, 7.—
Thursday, 8.—
Friday, 9.—Union Meeting at 5. Debate: "That the difference between mind
Saturday, 10.— [and instinct is one of Degree."

SUNDAY, 11.—
Monday, 12.—
Tuesday, 13.—
Wednesday, 14.—
Thursday, 15.—
Friday, 16.—Shakesperian Reading:—"Midsummer Night's Dream."

NOTICE.

The Magazine will be published every Month, except April, August, and September.

It will be published at Cornish Brothers, 37, New Street, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 4s 6d. to, post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 2, Vol. I. FEBRUARY, 1883. Price 6d.

EDITORIAL.

Though we thoroughly agree with the writer of a letter we published in our January number in his opinion that, even should the Magazine never see a second issue, it would not have lived in vain, yet we are very glad that our friends and fellow-students have given our paper such a kindly reception that we feel confident that the *Mason College Magazine* has a bright future before it. We have not been "damned with faint praise;" indeed we think that our critics must have accepted Goldsmith's lines as their motto :

> "Blame where you must, be candid where you can,
> And be each critic the good-natured man."

Most of the "blame" that we have received seems to indicate that our readers would be glad of rather more light and entertaining matter in our pages. We certainly do not intend to exclude such matter from the Magazine. College life abounds in incidents of the most humorous character, and our paper would be incomplete if this side of our life were not represented in it. Oliver Wendell Holmes and Mr. Lowell both made their first appearance before the public in the pages of a College Magazine. "The Dorchester Giant," "The Spectre Pig," "The Height of the Ridiculous," and many other pieces which are now published in every edition of Mr. Holmes's works first appeared in *The Collegian*, a paper edited by the students of Yale College, U.S.A.

Our Editorial this month would be incomplete if it contained no reference to the fact that our Founder was born on the 23rd February, 1795. Some account of the origin of the College and of its aims will appear in another place, so we will confine ourselves to recalling a few of the facts of Josiah Mason's life. He was in all respects a self-made man. He had no advantages of birth, education, or means, and started in life with very little chance of

becoming anything more than an ordinary labourer. He began to work when he was eight years old. It was a very humble line of business—that of selling cakes in the street. His next venture was of a more ambitious kind: the cake baskets were turned into panniers, and were slung over the back of a donkey—loftily named after Admiral Rodney—and Josiah Mason converted himself into a dealer in vegetables, which he carried about from door to door. When he began this business his father gave him a piece of advice upon which the son prided himself on having acted in later life. "Joe (said the father) thee'st got a few pence; never let anybody know how much thee'st got in thee pockets." Shoemaking, baking, and carpet-weaving followed the cake-selling business, and during this time Josiah Mason managed to teach himself writing, and also picked up enough money to enable him to buy a few books. As the carpet-weaving did not seem to offer any satisfactory prospect for the future of his life, he resolved, when he was about twenty-one, to pay a Christmas visit to his relatives in Birmingham. This was the turning-point of his life and fortune. He began work here by taking charge of a gilt toy business for his uncle, and devoted all his energies to it for six years; the inducement offered to him being that if he stayed and worked up the trade to its full capacity, he should have a share of it for himself. He was destined to a cruel disappointment. The business was sold to another person, and Mason was thrown upon his own resources with little money in hand and no work in prospect.

In 1822, when he left the gilt toy trade, he joined in the split-ring business, and soon after he added to it a new enterprise—that of steel pen making. In 1842 he joined Mr. G. R. Elkington in the electro-plating business. At this time the electro process was new and comparatively untried, and in the opinion of many its success was extremely doubtful. After many years of labour and outlay Elkington and Mason reaped a rich reward for their skill and enterprise. The Great Exhibition of 1851 gave them the means of demonstrating their success, and from that date to the present day they have stood at the head of the electro-plating trade throughout all the world.

The wealth which Josiah Mason acquired was valued by him chiefly as a means of doing good on a great scale. His first work was the establishment of an almshouse for aged women and an orphanage for girls at Erdington; the latter was the forerunner of the magnificent orphanage now existing, which was opened in August, 1869. The third, and in its probable results perhaps the

greatest of Sir Josiah Mason's foundations, is the Mason Science College. It is unnecessary in this place to enter into a description of the College, or to give an account of the course of instruction provided here. We will conclude by endeavouring to give a brief account of some of the personal characteristics of Sir Josiah Mason. He was extremely business-like and economical; he possessed the faculty of organisation to a remarkable degree; he had a powerful memory for people as well as for things, and was acquainted with the details of everything he had in hand. The writer of his memoir says, "Goethe's motto, 'unhasting, unresting,' formed the rule of his life. . . . . He was in the habit of sitting thinking quietly and undisturbed for half-an-hour, and often for an hour, before he went to bed. He then reviewed in his mind the events of the day, and made his plans for the morrow. He considered that to this method of reasoning upon all matters with which he was connected he owed the greatest successes of his life."

Sir Josiah Mason's design in founding the College was to give thorough systematic education and instruction to all who might come, unfettered by restrictions of class, creed, race, or sex. In order that the usefulness of the College might not be impaired, provision was made in the Trust Deed for changing circumstances; so that the claims of the present and the necessities of the future are alike carefully provided for.

SCIENTIFIC IDEALISM.

"We are such stuff
As dreams are made of."

It is possible to imagine a world peopled by somnambulists, each interpreting the faint suggestions from without which may reach his sleeping brain into a fantastic vision of his own. One is alone with roaring winds and waves, while another by his side seems to trudge through noisy city thoroughfares; one feels the chill vapours of the Valley of the Shadow of Death, while his nearest neighbour is enjoying the fresh breezes of the Delectable Mountains. But it is also not difficult to suppose that when two or more of these dreamers are submitted to the same external influences their dreams may tend to correspond, and, while not in any way giving a picture of surrounding objects, may yet resemble each other, and form a medium of intercourse. The superficies of the several visions will be similar, but, saving among a few of kindred organisation, all Elysian heights and Tartarean depths will remain personal and incommunicable.

The idea that the life of man is a kind of modified somnambulism has been a centre of force in the poetry, philosophy, and religion of

all ages, appearing now as a vague instinct, now as a mystical imagination, and again as a reasoned-out theory of perception. It is a far cry from Buddha to Berkeley, from Angelus Silesius to Herbert Spencer; yet all four tell the same tale in different language. From the East and from the West it comes, from Persian Sufi and Grecian Sage; sometimes the war-cry of the theologian, sometimes the watchword of the sceptic. Yet, while most are agreed so far, very few have hitherto been willing to stop short at this part of their parable. When a millstone comes under the notice of "Hans Metaphysikus,"[1] he will expend great ingenuity in proving that it may, can, or should be transparent, not perhaps to ordinary eyes, but to some ultra-visual organ which he and his disciples possess. This transparency is maintained as an article of faith for several centuries, until some new Hans springs up, and wins great renown by the startling discovery that the millstone really was what it seemed to be—opaque.

It might have been supposed *à priori* that the philosophers and their allies would never rest content with ignorance of things in themselves, and knowledge only of the manner in which things affect the mind. They sighed for new worlds to conquer, while the old world was yet unsubdued. The Relative had been very imperfectly explored, but the virgin soil of the Absolute was far more tempting. Accordingly, the fathers of thought—to whom let all reverence be paid, even for their errors—set out with the axiom, expressed or implied, that the true essence of the Universe is patent to reason, even when sealed to sense. There are, they said, certain immutable Realities, whose nature can be known, and of which the visible world is but a transient manifestation. It is true that the oracles disagreed the moment they began to apply criteria of truth, and to decide what these Realities were; but this, as was natural, only strengthened the conviction of each disputant. The character of the supposed primordial principles may be briefly indicated.

Take a concrete object—an apple will do as well as anything else—divest it in thought of every sensible quality; make it invisible, intangible, tasteless, odourless. What remains will be the substratum of the apple—the *noumenon*, perceived by the intellect, as distinguished from the *phenomenon*, perceived by the senses. Now what is this *noumenon?* "Number," says Pythagoras; "for when you have taken away all else, the apple still remains One." "No," reply Democritus and Epicurus; "surely there are still the Atoms which unite to form it, and the Space between them." But Plato interposes: "You have left untouched the archetypal Idea, not of this particular specimen, but of the Apple generically. This alone is permanent, perfect, unchangeable. An apple must decay, but the Apple decays not." Aristotle makes a correction. He neither admits that Ideas have a separate existence, nor that the

[1] See Schiller's poem "Die Metaphysiker."

senses are necessarily illusive. "The essential Form, impressed upon the sentient and cognised by the intelligent soul, is even more real than the Matter." Disregarding time and space (as becomes Idealists), we next summon up Locke, who draws a distinction between "primary" and "secondary" qualities. "Taste, scent, and colour," he says, "are not external existences, but are products of the mind. Subtract these, and extension, solidity, motion, and number still remain, as resemblances of qualities really existing in bodies, independently of perception." Our symposium must now be joined by Berkeley, Hume, and Kant; for, diverse as are the aims and the phraseology of these three great thinkers, their ground-idea is one and the same. "When we touch, taste, or smell your apple, we perceive nothing but our own sensations. When we attribute to it extension or solidity, we perceive nothing save our own thought."

Both sensation and thought are purely subjective; that is, they are within ourselves, not within the so-called object. As states of consciousness, they can give us no information with regard to anything outside that consciousness. It is as absurd to say that yellowness, sweetness, or hardness is a property of the apple, as to say that pain is a property of a pin when you have run it into your finger. Pain and yellowness are both *feelings*, and, therefore, cannot exist except in a sentient being. This reasoning seems simple enough, and yet has proved too subtle for general comprehension. A wedge of concrete fact is needed to open the way for abstract ideas; and this wedge is supplied by the discoveries of modern Physiology.

When we analyse the fabric of Nature, we find that it is built up of sights, sounds, odours, tastes, and touches. A synthesis of these impressions forms an object, which seems as though quite distinct from and outside ourselves. Yet this "object" is really nothing but the elaborated product of a complex piece of vital mechanism, constantly engaged in transmuting unknown forces into certain well-known results. For every class of goods which it can manufacture there is in this machine a special structural arrangement, which works uniformly when in sound condition, but may be so injured as to turn out very imperfect or distorted articles, or even to stop action altogether. There is no interchange of function between the several parts. Outlying or peripheral structures, as the eye, ear, nose, mouth, skin, are all recipients of raw materials, or stimuli; but each of these organs is planned to receive only one kind of stimulus. Waves of light do not affect the ear, nor waves of sound the eye. It should be noted that these forces, when they play upon their appropriate instruments, have not yet developed into what we understand by sound and light, but are only ethereal or aërial vibrations, which, in the absence of a sensifacient brain, will never become visible and audible. From eye and ear, impulses, still blind and deaf, pass along the optic and

auditory nerves; and here we must remark a very significant phenomenon. If the optic nerve be laid bare, and light be permitted to fall upon it, nothing is seen by the patient, but if it be subjected to an electric or mechanical stimulus, a flash of light instantly appears. So that while the luminiferous ether cannot act upon the optic nerve except through the retina, other agents can do so, and all give rise to the sole sensation of light. All is flour that comes to this mill; or rather, everything that comes, be it flour or no, is straightway made into bread. This holds good for the other senses. The same message, entrusted to the different sensory nerves, will be translated into the special language of each; an electric shock being perceived as a bright scintillation, a loud noise, a smell of phosphorus, or an acid or alkaline taste. Yet this language is not spoken by the transmissory fibres themselves, which seem to be identical with each other, and even with motor nerves, in fundamental structure and mode of conduction, and are besides quite incapable of maintaining and generating consciousness when cut off from connection with the brain. Our pursuit of the Macrocosmos to its source must lead us to the utmost recesses of the nervous system—a narrow space indeed, yet the birthplace and life-long habitation of those concepts which we name Infinitude and Eternity.

In the very centre of the brain, and directly communicating with the cerebral hemispheres, are two masses of grey nervous matter, called the *optic thalami*. Each of these masses is composed of four little ganglia, and it is the business of each of the four to receive and concentrate the impulses brought to it by a special nerve.[1] One is continuous with the olfactory nerve, and is the centre for impressions of smell; while the others in like manner focus converging impressions of sound, light, or touch. But they are only half-way houses, and must send on what they have collected to a definite zone of this cerebral cortex, each transmitting its own contribution to a definite area of that zone. Here, at last, the vibratory excitations attain their being's end and aim, and flash into consciousness. It is as though, in this true *sensorium commune*, dwelt a set of artists working in unison, and busily employed in converting Chaos into Cosmos. Here is a painter, producing from raw materials which are not even colours, but merely vibrations, forms and lines which Michael Angelo himself could only study and recombine; here a musician, creating notes and harmonies out of dead silence, which not even Beethoven or Mendelssohn could transmute into music without his aid. Here is a cook, who originates flavours; a perfumer, sublimely independent of aught save certain mechanical impacts; an

[1] For the sake of greater distinctness, I have availed myself of the recent researches of Dr. Luys, described in his work on "The Brain and its Functions;" but it is scarcely necessary to observe that my argument would not be affected by any error in his localisations.

architect, who endows the earth and its tenants with the attributes of solidity and tangible extension. The state of things may be very well represented by comparing the peripheral organ to a merchant who deals in only one kind of ware. The nerve-fibre is a carrier, attached to the service of this merchant, but physically capable of conveying articles other than those which form his master's stock-in-trade. The centre in the brain is the artist, confined to his own special art, to which he applies everything brought to him by the carrier. Now if we give this carrier a kind of parcel to which he is not accustomed, he will transport it faithfully, and will even travel in a direction contrary to his habitual route. The interpretation of this parable is contained in the following experiment: "If a centripetal nerve (gustatory) be divided, and its central portion be made to unite with the distal portion of a divided motor nerve (hypoglossal), the effect of irritating the former after the parts have healed is to excite contraction in the muscles supplied by the latter." [1] In other words, the impulse which could formerly make itself apparent only by travelling from periphery to centre, can now make itself apparent in quite a different way by travelling from centre to periphery. The structure of the nerve is unchanged, and the difference in its function is caused by the difference in the apparatus with which it communicates.

From such data we may draw very curious conclusions, which, like the mathematical definition of a line or a point, will possess at least an abstract validity, though the conditions postulated may be such as can never exist in actual experience. Suppose every part of the optic thalami and the sensorium to be atrophied, with the sole exception of the olfactory ganglia, and the corresponding cerebral area. Now imagine that all the nerves proceeding from the various peripheral organs were made to converge, and organically united with the surviving ganglia.[2] What would be the result? The world would seem one great Odour. We should smell with eyes, ears, fingers, and tongue. A beautiful picture or song would be perceived as a succession of harmonious perfumes, and we should inveigh (in language appealing to the olfactory sense) against

"The man that hath no" fragrance "in himself,
Nor is not moved with concord of sweet" scents.

Yet the waves of sound received by the ear, and the waves of molecular disturbance transmitted by the auditory nerve, would be the same as though these were to be made, at their journey's end, into notes of music. The difference would be internal, not external. So true is it that the Brain fashions its own universe.

But, after all, the question may occur to my readers—"Since everything is ideal, how can the nervous system be exempt from

[1] Kirke's "Handbook of Physiology," p. 480.

[2] See "Muscles and Nerves," by Dr. Rosenthal, p. 283, for a somewhat similar illustration.

this ideality? If it is not exempt, how can you attribute any powers or functions to a mere phantom? Are you not like the man who went out to commit murder, and committed suicide instead?" My answer is that I do not deny, but affirm, the existence of Matter, and but for the limited space at my disposal, would seek to show valid reasons for this affirmation. For the present, I must be content to plagiarise from Descartes, and to say of the cerebrum "*Cogitat, ergo est.*" It can appear to us only phenomenally, and we cannot speak of it otherwise than in terms of phenomena; but here, at least, we are forced to assume an underlying noumenon, while renouncing the vain hope of penetrating to its essential nature by reason or intuition. The fact remains, and is incontestable, that all those objects which constitute our world are made up of subjective sensations, and cannot possibly be pictures, though they may in one sense be products, of the Macrocosmos. Even the vibrations supposed to impinge on the surface of the body, and the molecular tumult propagated along the nerves, are merely convenient intellectual representations of the unknown. Conditions which, in the absence of a sentient being, would not have been even Silence, Darkness, or Emptiness, are taken by the little artists in the cerebral hemispheres, and fashioned into a glorious Universe of Light, Sound, and Solidity, whence are born all the thoughts and all the desires of man.

CONSTANCE C. W. NADEN.

THE MASON SCIENCE COLLEGE.

A SKETCH.

THE Mason Science College was formally opened on Friday, October 1st, 1880. An interesting account of the opening proceedings may be found in the College Calendar for the Session 1880-81, where the details of the meeting in the Town Hall in the morning, the subsequent luncheon at the Queen's Hotel, and the conversazione at the College in the evening, are given with a pen that does them full justice.

Seldom has so large an assemblage of world-renowned scientific men been seen in Birmingham as that which honoured the young College by its presence on that day; and we are proud that such names as Huxley, Max Müller, Roscoe, Balfour, and many others whom all students delight to honour, should be associated with the birth of the new institution.

Special interest was felt in the inauguration of the building on account of a feature which distinguishes it from any other Science College—namely, that it is open to women on exactly the same terms as men. All who have watched this experiment, if such it may be called, must be satisfied with the entirely successful way it has worked.

It was curious, on going to College on the morning after the

conversazione, to see the difference from its appearance of the night before. It was a forcible reminder that its real work had begun. Then all was gaiety, now all was work. Plants and flowers and guests were gone, and the long corridors and staircases would henceforth re-echo to the voices and tread of students. The work of the session was entered upon immediately with the spirit of earnestness and enthusiasm which has characterised it in succeeding terms, and which we hope will never be found wanting. We remember with gratitude that this has been in a great measure due to the Professors, who have from the outset set the example of devotion to their work, and to whose kindness and patience we owe much.

It is impossible to appreciate too highly the unparalleled advantages that the College affords for work. The teaching is the best obtainable in each branch, and the apparatus in every department is as nearly perfect as possible. In fact, work is made delightful, and the chief thing a student has to do is to avail himself of his privileges.

The College is opened every morning at nine o'clock, and lectures go on in the different branches throughout the day, beginning at ten o'clock in the chemistry lecture theatre. The lectures are aided by practical work, and the chemistry, physics, physiology, and biology laboratories are open every day from ten to four. In each of these each student has, at a separate table, all the apparatus he or she may require; including, in the two last-mentioned laboratories, a microscope.

The first session opened with four professorships only—those of chemistry, physics, mathematics, and biology. The following year the Science department was enlarged by the addition of a chair of Physiology, and a department of Arts was added to the College course, which greatly increased its usefulness. It includes the teaching of the English Language, History, and Literature, French, German, Latin, and Greek. We are glad to see that the Professor of Classics proposes to hold a class for Logic in the Summer Term if enough names are sent in, and we hope that many will avail themselves of this opportunity. The day, perhaps, is not far distant when the hope expressed by Professor Huxley in his opening address may be realised—that some provision shall be made for the teaching of Sociology. In addition to the course of day lectures, there is an attractive programme of evening lectures, which are largely attended.

In connection with the department of Arts, we may mention the severe loss the College has sustained in the resignation of Professor Bodington. But while regretting it for ourselves, we congratulate him on the high position he has gone to fill as Principal and Professor of Classics of the Yorkshire College, Leeds.

Last session an important alteration was made by the amalgamation of the Queen's College and Mason College: the students

of the former College now attend Mason's for chemistry, physiology, and botany.

Any sketch of the College would be deficient that did not mention the Library, which plays so important a part in the usefulness of the institution. The efforts of the Library Sub-committee have resulted in the admirable collection of books which line its shelves, and which has grown so rapidly that it has been found necessary to put shelves all round the adjoining Magazine Room. That it is highly appreciated may be known from the number of students who may be seen reading at the side tables or in the Magazine room all day. The lady students are particularly fortunate in having two sitting rooms for their own use, and in being allowed to take books there to read and talk over. As the end of term draws near the number of frequenters of the library increases. They appear more absorbed; many take notes; and it is generally understood that they are reading up for the approaching examinations.

The system of College examination is as follows:—In most of the classes there is an examination at the end of each term. The results are added together and a sessional prize is awarded in each subject to the top student. All who pass in the first division of the class-list receive a certificate, and are said to have passed with honours. The prizes and certificates are distributed on the opening day of the Winter Term.

There has been a large increase of students since the opening of the College. We started with 53 day students, and there are now about 254 names on the books, ninety-two of whom are lady students.

All who want information about the College, or who wish to become students, should apply to the able aud courteous Secretary of the College, Mr. G. H. Morley, who will furnish them with all particulars they require.

While the students do not neglect their work, they help and brighten it by the social atmosphere that pervades the College. This finds expression in that admirable institution the College Union, which unites social enjoyment with intellectual recreation in the most delightful manner, and which does much to strengthen friendly feeling among the students. Notices of Union meetings hang on the board among class lists and lecture notices; and the two phases of College life go on side by side, each benefited by the other. Any student of the College who wishes to join it must give in his or her name for election at an ordinary meeting, and pay the fee for the session—five shillings.

The members have hitherto met once a fortnight, and some idea of the popularity of the meetings may be gathered from the fact that the experiment of weekly meetings is being tried this term. Tea is provided at five o'clock in the Examination Hall, and at half-past five the meeting adjourns to the Physics Lecture

Theatre, by the kind permission of Professor Poynting, where papers are read and debates take place, followed in either case by open discussions. This society has been a great success, and the difficulties raised at first owing to its being formed in a mixed College have melted into thin air before the test of experience. On this point our thanks are due to Mrs. Tilden, who has always been a warm supporter of the Union, for her kindness in being present at almost every meeting.

An institution like the Union could not go on in the smooth way it does without very good internal machinery; in other words, without its indefatigable committee, whose continual efforts have brought about the successful results at which we are all so pleased. Several variations in the usual programme of tea and discussion have turned out so well that they will be repeated annually. Thus the first Union meeting of each session after the long vacation is devoted to the reading of Holiday Notes by the students; while the last meeting of the session is always given up to a Shakespeare Reading. The success of previous readings of "Macbeth" and "As You Like It" will cause us all to look forward to "A Midsummer Night's Dream," which is to be given in March.

This year a new feature was added by converting the first meeting of the Winter Term into a Musical Evening, and a very successful concert was given by the members on the 26th January.

The beginning of the present session was marked by a Conversazione given by the Professors and Lecturers of the College. The appearance of the College, gay with lights and flowers, recalled that of its opening evening. Those whose tastes were musical found pleasure in the selections of vocal and instrumental music in two of the lecture theatres, while for the scientific there were numerous interesting experiments and demonstrations. Altogether a most delightful evening was spent; and we take this opportunity of thanking our hosts for the pleasure they gave us.

The latest product of the College is its Magazine; and this slight sketch of our life at College cannot end better than in heartily wishing it a prosperous and honoured career.

ALICE JORDAN.

SPELLING.

It is somewhat surprising to notice what a large proportion of well-educated people are unable to spell correctly. True, orthography is by no means a corner-stone of culture, but bad spelling is a blot that shows in stronger relief the more perfect the composition that it mars, and stamps as vulgar a production that might otherwise pass muster as respectable. Grace of style in an ill-spelt manuscript inevitably suggests decoration and dirt, or pearls in a pigsty.

There is no doubt that some people have a natural aptitude for spelling, and others encounter a very great difficulty; the latter usually assert by way of excuse that it is "constitutional" or "hereditary," or they throw the blame on the English Language, and uphold the advantages of the phonetic system.

This last is the most narrow-minded utilitarianism, crushing out as it does so much of the beauty of words, and practically including English among the dead languages. Posterity may, it is true, read with equanimity:

"The lēst tutch ov thār hands in the morning, I kēp it bi dā and bi nīt,
Thār lēst step on the stār, at the dore, stil throbs thru me, if ever so līt,
Thār lēst gift, witch thā left 2 mi childhud, far orf in the long-ago yērs
Iz now ternd from a toy 2 a relik, and sēn thru the kristals of tērs."

But to eyes accustomed to the present writing, it is the peach without the bloom.

Meanwhile, as phonetic spelling still mainly holds its sway over the Fenian and Yankee style of literature, it behoves those who boast an English education to do justice to their mother tongue, and, though they may regard it merely as a means of communication, to respect and not to mutilate it.

From an illiterate person the orthography of the following is not surprising:—

"Dear Sir,—I hope you Will Bare with Mee As I hav ad so Much trubel the last Month or too I Bort sum Piggs an thort they Wood of Paid Mee I gave 25 shillings Apeas for them an was o Blight to hav them klled an sume shops as I carnt gett my Mony An My Son Went Away With Alot of My Mony. . . . . ."

It is, however, with mingled sentiments that one finds in the correspondence of cultivated people such statements as "Mr. Smith's accident has effected his sight, which was always bad." "We dined at one o'clock, but went out for a second addition in the evening." "If my sentimants appear atal eratic, pray excuse me"; and it is depressing to see the secretaries of a literary society presenting their "complements."

The following extracts are from some correspondence that passed between two friends of the writer, Damon Jones and Pythias Smith. Damon had criticised somewhat severely Pythias's caligraphy, referring at the same time to its effect on various people. In reply Pythias writes:—

"My dear Damon,—I am sorry that you had so much difficulty in deciphering my 'caligraphy,' as you erroneously term it. I have never laid claim to 'beautiful or ornamented writing,' which is the definition given by Mr. Latham of the term 'calligraphy.'

Might I also venture to quote Mr. Latham's remarks on the orthography of the word in question: 'Calligraphy is the current form, caligraphy being in every respect wrong.'

"I hope that ——— has dried his eyes; I can only attribute the tears to a severe cold in the head: my writing is always deemed 'good copy,' although it has never yet been honoured by the term 'caligraphy.' Excuse a long letter. I find that the copy-book *stile* of writing is somewhat tedious.—PYTHIAS SMITH."

To this, Damon promptly returns:

"My dear Pythias,—As to the orthography of the word in question my writing of it is supported by etymology and Webster. The meaning I will not discuss, merely reminding you of the existence of a form of expression termed sarcastic. There is, however, one point in your letter that has inspired me with such admiration that I have taken the trouble to transcribe a few parallel extracts from other English writers of eminence:—

"A stile is a step or set of steps for ascending and descending in passing a fence or wall.—*Swift.*

"The ornamental stile also possesses its merit.—*Reynolds.*

"Proper words in proper places make the true definition of stile.—*Swift.*

"One stile to a gracious benefactor, another to a proud insulting foe.—*Burke.*

"The copy-book stile of writing is somewhat tedious.—*P. Smith.* How beautiful is the analogy! 'Caligraphy' is then the fence, and 'copies' the steps by which it is to be ascended.—DAMON JONES."

At a well-known school of the past generation, the pupils earned good marks for reporting the mistakes in the signboards of the neighbouring shopkeepers. Even now with Board schools flourishing on every hand, one has not to seek far to find the following announcements: "Umberellas recoverd." "A pheaton for sale." "Oisturs stude and fride." "Bill of fare: Hounch of mutton, sprouds, suffle, and coker-nut pudding." Within the precincts of one of Birmingham's richest and most respected institutions, a door displays in large letters the inscription "Vegatable store," and in another of more recent foundation we read of a "Ladie's room." For printers indeed there seems to be no hope in the matter of spelling—but the subject is painful.

Most people, in writing, stumble over some one word, which invariably declines to be spelt rightly; they write it down in half a dozen ways, look at it all round, sideways, and upside down, in the end being hopelessly puzzled. The other day the writer heard a bewildered scribe muttering: "There's that word *chapel;* I can spell it in four ways—chappell, chaple, chapple, and chapil—but I never remember which is right; and I declare 'cupboard' isn't in my dictionary, for I've looked all through 'cub.'"

Lastly, while it is possible to excuse a child for confounding a

parasite with a person who kills his father, and imagining the feminine of beau to be arrow, it is a little painful to find students of science writing of the "pistol and staymens of the been," "read phumes" and "hygrogen gass," and it exemplifies in a striking manner that necessity for a more thorough general education that was so eloquently impressed on us at the beginning of the session.

I. C. EVANS.

THE CONCERT.

We are glad to announce that the concert of which notice was given in the January number of the Magazine has taken place, and, in spite of many evil forebodings, has turned out a complete success. It was originally intended that the concert should be held in the Examination Hall, but on the discovery that an important College lecture would be given in the lecture theatre immediately below, Professor Poynting kindly granted the use of the Physics Lecture Theatre. A platform was skilfully extemporised by the students, and, with Mr. Morley's kind assistance, the secretaries were able to make satisfactory arrangements for the reception of the guests. The sub-committee, consisting of Misses Sturge, Hadley, Southall, and Messrs. Greatheed and Ledsam, were indefatigable in their efforts to ensure the success of the concert. The following gentlemen undertook to act as stewards:—Messrs. Bodington, Demuth, Eliot, Hart, St. Johnston, Jordan, Mursell, Southall, Silvester, Wilson, and Heaton. The following ladies and gentlemen took part in the concert:—Chorus: Mrs. Tilden, Mrs. Lapworth, and the Misses Albright, Collings, I. C. Evans, Ledsam, Simcox, L. Dale, Evans, George, Glydon, Hadley, Jordan, Rubery, Southall; Professor Smith, and Messrs. Durrant, Greatheed, J. A. James, Loxton, and G. E. Wyncoll. Professors. Haycraft and Lapworth had kindly undertaken to sing, but were unavoidably absent.

PROGRAMME.

PART I.

PART-SONG	"O, who will o'er the downs so free?"	*Pearsall.*
PIANO DUETS	(1) "La Petite Ecuyère"	*Peterson.*
	(2) "Un Ballo in Maschera"	*Leybach.*
	Miss RUBERY and Miss GLYDON.	
SONG	"The Ferry Maiden"	*A. R. Gaul.*
	Mrs. BRACEY.	
"PETITE SYMPHONIE" (Two Violins)		*Dancla.*
	Miss EVANS and Mr. T. S WALKER.	
SONG	"Jack's Reward"	*Barri.*
	Mr. G. E. WYNCOLL.	
TRIO	"Stars the night adorning"	*Wekerlin.*
SONG	"A Slumber Song"	*Heins.*
	Miss HADLEY.	
	(With Flute Accompaniment by Mr. F. W. POWELL.)	
PART-SONG	"Jack Frost"	*A. R. Gaul.*

INTERVAL OF TEN MINUTES.

PART II.

TRIO	"The Spinning Chorus"	*Wagner.*
SONG	.. "Buy my Roses"	*Hudson.*
	Miss I. C. Evans.	
SONG	.. "Non è Ver"	*Tito Mattei.*
	Mons. Joël.	
PIANO SOLO	"Fantasia Impromptu"	*Chopin.*
	Mr. C. W. Dixon.	
VOCAL DUET	.. "I know a Bank"	*Horn.*
	Miss Rubery and Miss I. C. Evans.	
SONG	.. "Punchinello."	*Molloy.*
	Mr. R. G. Durrant.	
PART-SONG	"Ye Mariners"	*Pierson.*

Mr. Gaul kindly offered to train the chorus. He met the members several times during the vacation, and as the result of his able tuition, the glees and trios were rendered in a manner that appeared to give great satisfaction to the audience. Mr. Gaul's part song, "Jack Frost," was received with warm applause, and was vigorously encored. "Ye Mariners of England" formed an excellent finale to the proceedings, and was sung with great spirit and firmness by the choir. Mrs. Bracey's clear and pleasant voice was heard to advantage in Mr. Gaul's song, "The Ferry Maiden." Miss Hadley's "Slumber Song" was very effective, and she received admirable support from Mr. F. W. Powell's flute accompaniment.

During the interval the performers adjourned to the German Class Room, where coffee had been provided by Mrs. R. W. Dale. In the second part of the programme, Miss I. C. Evans's artistic and spirited rendering of Hudson's charming old ballad "Buy my Roses," excited the greatest enthusiasm, and she finally yielded to the repeated cries of encore, and sang "Love's Ritornella." Mons. Joel, notwithstanding the fact that he had a lecture engagement at a distance, made a point of being present, and was heartily encored after his rendering of "Non è Ver." Mr. Dixon's pianoforte solo was extremely successful; his playing of Chopin's difficult Impromptu showed a high degree of artistic taste and mechanical skill, and afforded the audience a very great treat. Mr. Durrant has a particularly well trained and pleasant tenor voice, which is always a great acquisition in amateur musical societies. He sang "Punchinello" with great taste and feeling, and in return for the prolonged applause which followed, sang "Old Simon the Cellarer," much to the amusement and edification of the hearers.

Special thanks are due to the Bailiff (R. Chamberlain, Esq.), not only for the charming programmes which he provided, but also for his kindness in allowing the students every facility in making the necessary arrangements. Dr. Tilden provided the piano for the evening, and Mrs. R. W. Dale very kindly made arrangements to supply the weary performers and stewards with hot coffee. It would be quite impossible to express the gratitude we feel to Mr. Gaul for giving up so much of his valuable time to training the performers. However willing the students might have been, it would have been impossible for them to make the concert a success

without the necessary teaching and training of a competent musical conductor. We feel sure that Mr. Gaul's kindly and patient instruction has made the practices not only useful but extremely enjoyable to all the chorus.

In conclusion, let us say that we hope this, the first concert given by the students, will not be the last, and that we shall often have the pleasure of entertaining our friends within the walls of the College.

E. F. ELIOT, } Secretaries.
E. A. JAMES, }

THE MASON COLLEGE UNION.

January 19. Debate.—Mr. DEWES having been voted to the Chair, Mr. CULLIS moved, "That it would be advantageous to society for the hours of labour and business to be shortened." With regard to this question, society might be regarded as consisting of workers—including both those seeking employment and those actually engaged in work—and persons of leisure. If the hours of labour and business were shortened, the demand for workers would be increased, the workers would be better paid, and persons of leisure would have to work instead of remaining idle. If the workman had leisure he would become a better man, his life would be brighter, and he would then be no longer dispirited, despised, dishonoured, and disgraced as he was now. Mr. BARRATT said the workman was obliged to work a long time in order to earn his living. This being so, it would be absurd to alter the hours of labour. The worker would have more leisure, certainly, but he would have to face starvation. Then, again, the previous speaker had failed to point out how the leisure time would be employed more profitably than in work, and had not brought forward any arguments to show that workmen would employ their time better. In conclusion, he moved, "That at the present time it would not be advantageous to society for the hours of labour and business to be shortened." Mr. TUNSTALL supported Mr. Cullis. The last speaker seemed to think that a workman spent his leisure time in a public-house. Speaking from experience, he was able to deny that. It was only the scum of the working classes that frequented public-houses. If the workman had more leisure time, he undoubtedly would occupy it well. Give him a trial, and you would soon see that. Mr. COOPER supported Mr. Barratt. From his own experience he could affirm, in opposition to the last speaker, that working men did frequent public-houses, and that they would do so more if they had more leisure. As there could not be wealth without labour, shortening the hours of labour would lower the position of the nation. Mr. GREATHEED considered that there was no compulsion in the matter. A man might work or starve, as he liked. We must not be too sentimental. The object of life was to get the greatest amount of pleasure for the smallest amount of pain. Miss NADEN considered that the pain was greater than the pleasure was worth. The price was too much. Mr. DURRANT thought the last two speakers were wrong in calling all work pleasure-seeking. Work was not always a form of pleasure-seeking. Mr. HART spoke in favour of the amendment. Miss ELLERMAN pointed out that the question was not so much increasing the amount of leisure time as rearranging the work which a working man does. Mr. CULLIS then briefly replied. A working man went to a public-house because society did not provide him a good home. His condition was a disgrace to our national life.—The CHAIRMAN then put the resolution to the meeting. Fourteen voted for, ten against.

The following were then elected new members of the Uuion :—Mr. Blakeney, Miss Bodington, Miss C. Bodington, Mr. Featherstone, Mr. Wyncoll.

The EDITOR reported that the sale of the Magazine had been satisfactory.

February 2.—Papers were read by Miss EVANS and Mr. FEATHERSTONE on "Degeneration" and "Narcotics and Stimulants." As we hope to publish Miss Evans's paper as it stands, we shall not give an abstract of it this month. It was illustrated by numerous diagrams, and received with great enthusiasm by the audience. Mr. Featherstone's paper was full of interest, and we are sorry that, owing to the amount of space devoted to the concert, we have not room to give an abstract of it. In speaking of stimulants and narcotics, Mr. Featherstone decidedly advocated their use in moderation, and this gave rise to a discussion in which a large number of the members took part. When the discussion closed, Mr. GREATHEED brought forward a motion to prolong the tea hour till 5.45. This motion was lost.

The following students were elected members of the Union :—Misses B. Clarke, L. Wilkins, E. Bawer; Messrs. W. Gordon, Boden, Hill, and Gardner.

February 9. Debate.—Mr. Smithson having been voted to the chair, Mr. GREATHEED moved, "That the prohibition in Rule 17 of religious subjects from all debate and criticism ought to be abolished." Mr. Greatheed contended that as religion was a subject of paramount importance it should not be excluded from debate. In referring to Clause 26 of the Trust Deed, he argued that its spirit was in favour of free discussion on religious subjects, and said that in Birmingham, of all places, we need not be afraid of narrowness and sectarianism. The speaker then proceeded to meet several practical objections that might be urged on the part of the opposition, such as the bitterness that might result from the introduction of religious subjects. Mr. ELIOT urged that discussion on religious subjects in a society like the Union was impossible—the speakers would take different stand-points, and no valuable results would be arrived at. Arguing from precedent, he quoted the example of many older debating societies, and contended that the introduction of religious subjects would tend to divide the Union into cliques, and act as a bar to social intercourse. He then proceeded to meet Mr. Greatheed's arguments, referring to the presence of ladies in the Union, and concluded by saying that he believed the introduction of religious subjects would act in a disastrous manner on the interests of the society. Mr. BARRATT believed that the argument as to the usefulness of discussion used by the previous speaker was an argument on his own side, and declared his conviction that the Union of the future would insist on discussing religious questions. Miss L. DALE said she should take a practical view of the subject. She believed that we should never obtain the consent of the Council to the proposed alteration of Rule 17 ; she interpretated Clause 26 in an opposite sense to Mr. Greatheed, and thought it wiser for students to confine themselves in debate to subjects taught in the College. The discussion was continued by Messrs. Blake, Cullis, and Cooper on the affirmative side ; and by Misses Dale, Ellerman, Bodington, and Messrs. Carter and Brittain on the negative. Two visitors took part in the discussion—Mr. BONDFIELD on the affirmative, and Mr. BODINGTON on the negative side. Mr. Greatheed then replied, and the votes being taken, the affirmative lost, the numbers being six for and thirty-three against.

Several new members were then elected, and a bye-law was passed, allowing members who had to leave early to record their votes after the openers on the affirmative and negative had spoken.

[The EDITORS regret that the account of the debate is necessarily very curtailed; but the space and time at their disposal were both extremely limited.]

E. F. ELIOT,
E. A. JAMES, } *Hon. Secs.*

COLLEGE INTELLIGENCE.

UNIVERSITY OF LONDON.

MATRICULATION EXAMINATION, JANUARY, 1883.

SECOND DIVISION.

Gibson, Walcot.
St. Johnston, George.

JOSEPH PRIESTLEY.

The subject of this short sketch, Joseph Priestley, was born in 1733, at Fieldhead, near Leeds. He was the eldest son of Jonas Priestley, a maker of woollen cloth. When about six years of age, he lost his mother, and was shortly afterwards adopted by his aunt, who was a strict Calvinist, and whose house was the resort of the leading dissenting clergy of the neighbourhood. Being a boy of great natural ability, his aunt determined to bring him up as a minister, and he was sent to a local Grammar School, where he remained until he was about sixteen. His health, however, broke down about this time, and the project of entering the ministry was abandoned for a time. In the meantime he learnt French, German, and Italian without a tutor, and also read some metaphysics, Chaldee, Syriac, &c. In 1752, having completely recovered his health, he was sent to the Dissenting Academy at Daventry, where he spent three years.

He left Daventry to take charge of a congregation at Needham, in Suffolk. Here his theological opinions caused him to be held in general disfavour, and, in consequence, his friends, in 1758, obtained for him a meeting house at Nantwich, in Cheshire. Whilst at Nantwich, Priestley opened a school, and here he appears to have first performed experiments in natural science. From Nantwich, Priestley removed to the Academy at Warrington, as teacher of languages; this, after a time, he gave up for a ministry in Leeds. After spending six years at Leeds, he was engaged by the Earl of Shelburne as a literary companion. This connection was continued for some years, and shortly after its severance, Priestley settled at a meeting-house in Birmingham. Whilst in Birmingham he engaged in theological and political discussions, in which his views were far too liberal to suit the authorities of that time. The result was that in 1791, on the anniversary of the French revolution, Dr. Priestley's meeting-house and residence were attacked by the mob and burnt; his library and apparatus were destroyed, and he and his family only escaped by leaving Birmingham under an assumed name. Priestley proceeded to London, but meeting there with the same style of treatment as in Birmingham, he left England in April, 1795, and settled in Northumberland, Philadelphia, where he resided until his death in 1804.

With Dr. Priestley's very voluminous contributions to theology we have nothing to do, but will content ourselves with glancing briefly at his scientific works. Whilst at Nantwich, Priestley bought some philosophical instruments, which he instructed his scholars to use; but it was not until somewhat later that he turned his attention seriously to physical science. His first work appears to have been a "History of Electricity," which he published in 1767, and which obtained for him the Degree of Doctor of Laws from the University of Edinburgh. It was in

this year that Priestley removed from Warrington to Leeds, where he chanced to live near a brewery; this circumstance caused him to turn his attention to the "fixed air" given off during the process of fermentation, and led to the publication of his first paper upon "Air." Removing from this house shortly after, Priestley was obliged to prepare the "fixed air" for himself, and this necessity led him to make the extended series of experiments which resulted in those methods of experiment which are still used in pneumatic chemistry.

Priestley, in 1772, was awarded the Copley Medal of the Royal Society, for his paper on "Observations on Different Kinds of Air," the outcome of the above-mentioned experiments.

The chief discoveries of Dr. Priestley were, however, "nitrous gas" and "dephlogisticated air." The former is now called nitric oxide. It was known before Priestley's time, but he was the first to apply it to the analysis of air. The latter, which we now know as oxygen, was prepared by him by heating *mercurius calcinatus per se* (mercuric oxide) in a tube by means of the sun's rays, which he threw upon the tube by the aid of a burning glass. Priestley is represented performing this experiment in the statue which stands near the Town Hall.

Although oxygen was discovered by Priestley in 1774, yet he remained ignorant of the true part which this gas plays in combustion, respiration, &c., and, indeed, the last paper he published, two years before his death, was one in which he defended the Theory of Phlogiston. But, for the respective parts played by Priestley and Lavoisier in the discovery of oxygen, we must refer our readers to the recent numbers of *Nature*, where the subject is fully discussed by Mr. Rodwell. Priestley also first made known sulphur dioxide, hydrochloric acid, ammonia, &c., in the gaseous form, and also first observed the decomposition of ammonia by the electric spark.

In spite of the numerous discoveries of Priestley, we cannot regard him as a scientific man in the true sense of the word. His discoveries were the result of haphazard experiments performed at odd moments, usually before breakfast, and he lacked the ability to properly interpret the results he obtained. Of chemical analysis he knew nothing. Indeed, we read that upon one occasion he obtained a blue liquid the nature of which he was unable to ascertain, and he was forced to obtain the assistance of a friend, who found it to be a solution of nitrate of copper.

The above account of Priestley and his work is of necessity very condensed, and readers who are anxious to obtain a more detailed history will find it in Thomson's "History of Chemistry," and in Professor Huxley's address at the unveiling of the Priestley statue.

G. Harris Morris.

LABORATORY WORK.

CHEMICAL DEPARTMENT.

THE number of students attending the laboratories and classes in this department is fully sustained this term.

Among the work being done by the students we may mention an investigation of the Cymene obtained in the dry distillation of Indiau-rbber, and an attempt to improve the troublesome separation of Tin and Antimony.

Some good work has also been done by Mr. Nicol upon the vexed question of Solution of Salts. The results, which were communicated to the Chemical Society and to the Royal Society of Edinburgh, promise to materially assist in clearing up this difficult subject.

G. HARRIS MORRIS.

NOTICE.

CHEMICAL DEPARTMENT.

We are informed that the Council of the Institute of Chemistry of Great Britain and Ireland have decided upon holding periodically the practical examination required for the Associateship of the Institute in certain of the principal towns—Birmingham amongst the number—and that Professor Tilden has accepted the office of Examiner for this district.

OUR CONTEMPORARIES.

We acknowledge with thanks the receipt of *Midland Institute Magazine*, the "Inaugural Address of the Session 1882-83," Ladies' Debating Society. Mrs. Crosskey's address is an admirable one, and we feel sure that it will be read with great pleasure by everyone, and particularly by Mason College students. The writer takes a high view of the culture possible to women, and shews clearly that true education will not unfit them for the performance of the every-day duties of home life, but on the contrary will assist them to discharge such duties in a more intelligent and satisfactory manner.

Laurel Leaves.—The December number of this magazine is an extremely interesting one. The President's address to the Discussion Society, and a paper on "Life at Newnham," occupy most of its pages, and we are sorry that we have not room to give extracts from either of the papers.

The Cambridge Review, and *The Mailburian*, are also to hand.

ERRATA (Jan. Number).—Page 10, line 12, for "Poggendroff" read "*Poggendorf;*" page 18, line 8 of "Hercules," for "reeks" read "*recks;*" and in line 14, for "amongst" read "*among*;" page 18, line 18, for "contemporaies" read "*contemporaries*;" page 21, verse 6, for "The-cream jug" read "*The cream-jug.*"

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee on the part of the writers.*

ANSWERS TO CORRESPONDENTS.

"INQUIRER."—*Salt* was used in sacrifice by the Jews; also by the Greeks and the Romans. Spilling the salt, after it was placed on the head of the victim was considered a bad omen, and hence the superstition. *Walking under a ladder* may be dangerous alike to person and apparel, because the ladder may slip, or mortar, etc., may be dropped by the person on it. *Friday is held to be unlucky* because it was the day of our Lord's crucifixion. Soames says "Adam and Eve ate the forbidden fruit on a Friday and died on a Friday." ("Anglo-Saxon Church," p. 255.)

"ASTONISHMENT."—We understand that two of the corrections on the list were made by the Professor, and the others were probably due to the frivolity of students.

[We are sorry not to be able to insert a letter from "One Fond of Tennis," because it was not signed by the writer. We shall be glad to insert it in our next issue if the writer will communicate with us.—ED.]

To the Editor of the *Mason College Magazine.*

Sir,—I should like to enquire through the medium of your columns how it is that so few gentlemen favour the Union by their presence on Friday evenings. On one particular occasion the members were counted, the result being thirty ladies and only twenty gentlemen; and from my own observation I believe this to be very frequently the proportion. Surely this is not as it should be. Are "Spiritualism" and the "Egyptian Question," not to speak of "Physical Culture" and "Holiday Notes," subjects too abstruse and incomprehensible to be dealt with by these followers of Newton and Darwin?

Hoping you will find space for this protest. I am, yours faithfully,

A REGULAR ATTENDANT AT THE UNION.

To the Editor of the *Mason College Magazine.*

Oversley, Edgbaston,
January 14th, 1883.

Dear Sir,—Although I am not a student of the Mason College, I read with great pleasure the opening number of the Magazine, and whilst agreeing in every respect with your criticism of the "tristful holocaust to the Moloch of fashion" in the Editorial introduction, allow me to draw your attention to the fact that so far from being "entirely new to the English language," the word "tristful" occurs in "Hamlet," Act III., Scene IV.:

> "Yea, this solidity and compound mass,
> With tristful visage, as against the doom,
> Is thought-sick at the act."

I remain, yours sincerely,
P. A. H.

[Our correspondent is quite correct in the quotation from "Hamlet," and we were wrong in saying that the word "tristful" is entirely new to the English language; but, as the writer indicates, this does not affect our argument.—ED.]

To the Editor of the *Mason College Magazine.*

The Mason College, Birmingham,
Jan. 29th, 1883.

Sir,—In the Union programme for this term, a "Shakespearean Reading" is announced for the last meeting in the term.

Might I ask *how* or *by whom* the students who are going to take part in this reading were chosen? I know that several members of the Union have not even been *asked* to take any part in the affair.

Is this right? I say it is not. It may be said, "All the students cannot each take a part, and preference should be given to older students." I can prove that this rule has not been adhered to in the choice of the readers.

It would not have been difficult to call a meeting of all those members of the Union who wished to take part in the readings, and for an unbiassed judge to be present to criticise the reading of the students.

This, at all events, would have been a *fair* proceeding—much fairer than that taken by the Union Committee.

Before the Union dare boast of its "singular freedom from private prejudices and cliques," such behaviour

must be made impossible. It indicates a lamentable lack of public spirit, and points to the petty exclusiveness of a ruling clique.

In your sketch of the scope of the Magazine you said it would be an outlet for grievances, which no one would care to bring forward at our usual pleasant Union meetings.

Surely this grievance needs an explanation.

Trusting to your sense of public justice to insert this in your next,

I am, yours truly,

A LOVER OF JUSTICE.

[The students who are going to take part in the Shakespeare reading were chosen by a sub-committee appointed by the General Committee, with which body the responsibility rests. The committee endeavoured to choose those persons whom they thought to be competent, but as our correspondent remarks "all the students can not be chosen;" hence there must be many remaining who are both able and willing to read. We are confident that the method of selection suggested by "A Lover of Justice" is utterly impracticable. The method taken by the committee appears to us a perfectly fair one, and we very much regret the tone of our correspondent's letter. We are not aware that the Union has ever boasted of its freedom from cliques, though we think it might do so; and we are quite unable to understand what is meant by "the petty exclusiveness of a ruling clique."—ED.]

To the Editor of the *Mason College Magazine.*

Dear Sir,—Will you kindly inform me of the name of the one "we are almost entirely indebted to" for our well-supplied, well-selected, and well-arranged library? for I think others, besides myself, may still be in ignorance as to whom our thanks are due, for due indeed they are.

Yours, &c.,

IGNORAMUS.

[Dr. Heslop, the Chairman of the Library Committee, has himself given about three-fourths of the volumes on the shelves.—ED.]

To the Editor of the *Mason College Magazine.*

Birmingham,

February 5th, 1883.

Dear Mr. Editor,—I understand that you are desirous that all members of the College should, from time to time, express themselves in the pages of the Magazine, and are willing to consider suggestions which they may make. The suggestion which I would venture is—that some member should start a subject for literary discussion, somewhat in humble imitation of the short essays we often see in the *Nineteenth Century*, where the various opinions of well-known men and women on some particular topic are placed side by side, or are answered in following numbers.

This, I think, would give the Magazine, for many of its readers, an added interest, and would serve to meet one of its objects—viz., "to express the *feeling* of the College."

I have ventured to enclose herewith a short "thesis" on the subject of Hero-worship. Very possibly you may not have space for its insertion, or regard it as unsuitable or otherwise.

In any case I should be glad if you would—as they say—give my suggestion ventilation through your columns.

I am, dear Mr. Editor,

Yours faithfully,

D.

[We are glad to receive any suggestions from members of the College, and we are happy to inform our correspondent that we had already arranged for a Symposium such as he suggests.—ED.]

TENNIS CLUB.

Mason College Tennis Club Ground is situated at the corner of Richmond Hill Road and Somerset Road. Entrance fee, 5s.; subscription, 10s. Any student wishing to join this club may communicate with

HUBERT PRICE,

Hon. Sec.

ROGER GILES.

The following is a specimen of English Composition by a schoolmaster of the old style in Devonshire:—"Roger Giles, Surgin, Parish Clark, and Skulemaster, Groser, and Hundertaker, Respectably informs ladys and gentlemen that he drors teef without wateing a minit, applies laches every hour, blisters on the lowest tarms, and vizicks for a penny a peace. He sells Godfather's Kordales, Kuts Korns, bunyons, dokters hosses, clips donkies wance a munth, and undertakes to luke arter every bodies nayles by the ear. Joesharps, penny wissels, brass kanelsticks, fryinpans, and other moozikal hinstrumints hat grately reydooced figers. Young ladys and genelmen larnes their grammur and langeudge in the purtiest manner, also grate care taken off their morrels and spellin. Also zarm-zinging, tayching the base vial, and all other zorts of vancy-work, squadrils, pokers, weazils, and all country dances tort at home and abroad at perfekshun. Perfumery and znuff in all its branches. As times is cruel bad, I begs to tells ey that i his just beginned to sell all sorts of stashonary ware, cox, hens, vouls, pigs, and all other kinds of poultry. Blackin-brishes, herrins, coles, skrubbin-brishes, traykel, godly bukes and bibles, mise traps, brick-dist, whisker-seed, morrel pokkerankerchers, and all zorts of swatemaits, including taters, sassages, and other garden stuff, bakky, ziggars, lamp oyle, tay-kittles, and other intoxzikatin likkers; a dale of fruit, hats, zongs, hare oyle, pattins, bukkits, grindin stones, and other aitables, korn and bunyon zalve and all hardware. I as laid in a large azzortment of trype, dogs' mate, lolipops, ginger-beer, matches and other pikkles, such as hepsom salts, hoysters, Winzur sope, anzetrar. Old rags bort and zold here and nowhere else, new lade eggs by me Roger Giles, zinging burds keeped, sich as howles, donkies, paykox, lobsters, crickets, also the stock of a celebrated brayder. Agent for selling gutty-poker souls. P.S.—I teaches gografy, rithmetic, cow-sticks, jimnastiks, and other chynees tricks."

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Vol. I. No. 3.

THE Mason College Magazine

EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

MARCH, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

"JOURNAL" WORKS, TYP.

MARCH, 1883.

Friday, 16.—Shakesperian Reading:—"Midsummer Night's Dream."
Saturday, 17.—

Monday, 19.—Spring Term ends.
Tuesday, 20.— (Spring Term Examinations begin).
Wednesday, 21.—
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Friday, 23.—*GOOD FRIDAY.*
Saturday, 24.—

Monday, 26.—
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Monday, 2.—
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Saturday, 7.—

Monday, 9.—
Tuesday, 10.—
Wednesday, 11.—
Thursday, 12.—
Friday, 13.—
Saturday, 14.—

Monday, 16.—
Tuesday, 17.—Summer Term begins.
Wednesday, 18.—
Thursday, 19.—
Friday, 20.—Victoria University Charter granted, 1880.
Saturday, 21.—

NOTICE.

The Magazine will be published every Month, except April, August, and September.

It will be published at Cornish Brothers, 37, New Street, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 4s. 6d. 5s. post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 3, Vol. I. MARCH, 1883. Price 6d.

EDITORIAL.

We believe that we have every reason to congratulate the Union at the close of the Spring term on the work that has been done by the members. Some of the papers have reached a very high degree of excellence, and the style of the debating has certainly improved. This was specially noticeable at the debate on February 9th. The leaders showed more freedom and less disposition to rely exclusively on their notes than in previous debates. Of course, independence of notes does not mean that the speaker has prepared nothing, but that he is really master of notes and subject; and it is only in this way that a speaker can hope to be really effective. We are glad that our Society is perfectly free from what we may describe as "fine talking"—there can be nothing more lowering to the tone of a debate than the idea that a motion must be finely or grandiloquently worded in order to be effective. In such a case the speaker is always more occupied with his audience than with his subject, and, as a natural consequence, his speech is apt to be more fine-sounding than sensible.

Mr. Lowell gives some amusing and instructive examples of what he calls "the stretching and swelling of our language" by the newspaper reporter, and warns the readers of daily papers against the tendency of this poison. We will quote a few instances from his list.

Old Style.	*New Style.*
Sent for the doctor.	Called into requisition the services of the family physician.
The Mayor of the city in a short speech welcomed—	The chief magistrate of the metropolis, in well-chosen and eloquent language, frequently interrupted by the plaudits of the surging multitude, tendered the hospitalities.

I shall say a few words.	I shall, with your kind permission, beg to offer some observations.
A bystander advised.	One of those omnipresent characters who, as if in pursuance of some previous arrangement, are certain to be encountered in the vicinity when an accident occurs, ventured the suggestion.
He died.	He deceased, he passed out of existence, his spirit quitted its earthly habitation, winged its way to eternity, shook off its burden, &c.

We are glad that our Union is free from such absurdities as these, and that the speeches which we listened to at the last debate were characterised by a vigour and directness which could only be caused by real interest in the subject. We heard several maiden speeches, and as the success of the Union must largely depend upon individual effort, and specially upon the part taken by new members, we think that its prospects for the future are decidedly bright.

DEGENERATION.

All existing forms of life have developed from a single or from a few simple original forms by gradual modification, and this modification has been governed by the two great laws of Inheritance and Adaptation. The law of inheritance has a conservative action, handing down the variations gained by adaptation, but also tending to make every creature like its parents; and it is the law of adaptation which has chiefly caused the modifications which have produced the various and complex forms inhabiting the earth at this present time. This law, which is the tendency of living things to adapt themselves to the circumstances and conditions of life in which they are placed, has for its most striking result the elaboration and higher organisation of animal life: as a whole, the history of animal life is a steady march onwards towards perfection. But when we examine closely into the relationships of the forms representing links in the chain of animal development which still remain to us, we find that the idea of modification in an ascending scale alone is not sufficient to explain them all. The figure which best represents the relationships of the different members of the animal kingdom to one another is that of a tree, of which, indeed, the few scattered forms of life at present existing form but an imperfect and unsymmetrical representation. The root represents the primitive ancestral form or forms; the trunk, the main line of

modification which has resulted in the most highly organised members of the animal kingdom; and the branches, forming the great mass of the tree, the numberless side lines on which modification has worked. As in a tree, some branches are very short; there seems no further need for modification along those lines, and the forms of which they are composed remain stationary. A great many branches and connecting links are extinct. But these two results of the laws of life—namely, the ever-increasing elaboration and march onwards of some forms, and the remaining stationary or balance of others—do not seem sufficient to explain the facts of the structure of many existing forms of animal life. Some of the branches of the great tree seem to turn downwards—to have gone on modifying, but in a downward, not an upward direction—the forms they represent becoming less highly organised, or, to put it in other words, less complex in structure, and adapted to less complex conditions of life.

Adaptation to circumstances, as a rule, has an improving and elaborating influence, for its general result is greater division of labour, and greater division of labour *is* higher organisation. An animal may be likened to a community, in that it is composed of a collection of cells; and it is very easy to see how, in the history of communities, increase of civilisation and greater division of labour have gone hand in hand. In savage races each individual supplies his own wants, procuring his own food and clothing; while in civilised races each individual has his own special work, and puts his whole strength and ability into it, instead of doing fifty things more or less imperfectly. So, in the lower creatures, one set of cells does what would be the work of several in a higher form. In the simplest form of all, the Amœba, which consists of a single cell, that single cell performs the functions of respiration, movement, sensation, alimentation, and reproduction. But specialisation does not always tend to improvement: an animal may become specially adapted to the circumstances in which it finds itself, and yet have become less highly organised, and therefore lower in the scale, because the circumstances were such that, although they might lead to elaboration of one particular organ, the rest were disused, and the general capabilities therefore lessened. For it is a law of Nature that as soon as an organ is of no use, or its use is neglected, that organ becomes useless, or disappears altogether. The fish found in the caves of Kentucky, and other caves to which the light does not reach, are quite blind, but still retain the rudiments of eyes, which, there is no doubt, were once functional. Many birds have, by disuse, partially or entirely lost the use of their wings, as, for instance, the ostrich and some kinds of ducks. Some races of savages, who still depend a great deal on the acuteness of their hearing in hunting or in warfare, are able to prick their ears in the same way as dogs and horses; but in civilised nations the ear muscles, though still

present, can seldom be used to move the ear. It is easy to see that this law of Nature governs human life; everywhere around us we can see instances of people who have lost talents or powers which they once possessed, merely through neglecting to cultivate them. With animals as with mankind, it is the life of competition and struggling which improves and increases the powers, and it is the life of ease and plenty which degrades. Parasites are the most striking instance of circumstances for degradation. An animal finds it possible to live and feed on the body of another animal; in this situation it has all its wants supplied without any trouble on its own part, and thus loses the need of legs, eyes, and any organs of defence it may possess, and with the need of them these organs disappear, the creature remaining little but a stomach with a mouth. The parasite Sacculina consists of a simple bag of eggs with an opening at one side surrounded by root-like processes, which it bores into the flesh of the animal on which it lives; and yet in the development of this creature from the egg it passes through a stage—the Nauplius stage—which has three legs and can swim about, thus being of a higher organisation than the adult stage. This Nauplius stage is one of the characteristic stages in the development of the lobster family, and it is inferred from that that the lobster and Sacculina are both descended from a common ancestor, which would be very much like the Nauplius, and that the influence of different circumstances on that common ancestral form produced on the one hand the lobster, on the other hand the parasite. This is perhaps an extreme case: it is not all parasites which become so very simple, but a parasitic habit of life always simplifies the structure of an animal to a considerable extent. In human life we can often see the deteriorating influence of luxury taking effect in the individual, but the outward and physical changes which it produces in the parasite are the result of a gradual modification acting during generations of continuance in parasitic habits.

A non-motile habit of life often leads to degeneration. A creature finds that food is so plentiful that it has no need to go in search of it, so it settles down and lets its food come to it. Of course its legs are of no further use as legs, so they disappear, or are used in some other way—probably as feelers—and the creature will probably also lose its eyes, if it has any, as their principal work is to assist in the search for food, and in escaping from enemies. Many of the classes of the animal kingdom have their non-motile forms, which have often degenerated so much that it would be almost, sometimes quite, impossible to connect them with the other members of their class by a comparison of the adult forms. Here the study of the development of the individual, which is a repetition, though often a very scanty and imperfect one, of the development of the species, is the means by which the relationship of these degenerate forms to their classes is made clear. The stages of individual development

are also often a record of the line along which the modifications worked which produced the adult form, and show how what at first sight might appear to be a monstrosity, a caprice of Nature, is really a result of the action of one of the great laws of life. We find among the lobsters an example of degeneration brought about by a stationary habit of life, in the family of barnacles. There are two kinds of barnacles: one resembles a mussel with a long stalk, and the other is without a stalk, and has a conical shell, composed of several pieces. Examples of both are common on the English coasts, the stalked barnacle being found attached in large bunches to the bottoms of ships, or floating on pieces of wood; and the conical barnacle, or acorn-shell, growing on the rocks.

The following extract from Gerard's "Herbal," date 1597, shows what conclusion the naturalists of that time drew from the appearance and habit of life of the stalked barnacle:—

"There are founde in the North parts of Scotland, and the Islands adjacent, called Orchades, certain trees, whereon doe growe certaine shell fishes of a white colour, tending to russet; wherein are conteined little living creatures: which shels in time of maturitie doe open, and out of them grow those little living things, which, falling into the water, doe become foules, whom we call Barnakles, in the North of England Brant Geese, and in Lancashire Tree Geese; but the other that do fall upon the land perish and come to nothing: thus much by the writings of others, and also from the mouths of people of those parts, which may very well accord with truth.

"But what our eies have seene, and hands have touched, we shall declare. There is a small Ilande in Lancashire called the Bill of Foulders, wherein are found the broken peeces of old and brused ships, some whereof have been cast thither by shipwracke, and also the trunks or bodies with the branches of old and rotten trees cast up there likewise: whereon is found a certain spume or froth, that in time breedeth into certaine shels, in shape like those of the muskle, but sharper pointed, and of a whitish colour; wherein is conteined a thing in form like a lace of silk finely woven, as it were together, of a whitish colour; one end whereof is fastened into the inside of the shell, even as the fish of Oisters and Muskles are; the other ende is made fast into the belly of a rude masse or lumpe, which in time commeth to the shape and forme of a Birde: when it is perfectly formed, the shell gapeth open, and the first that appeereth is the foresaid lace or string; next come the legs of the Birde hanging out; and as it groweth greater, it openeth the shel by degrees, till at length it is all come foorth, and hangeth onely by the bill; in short space after it commeth to full maturitie, and falleth into the sea, where it gathereth feathers, and groweth to a foule, bigger than a Mallard, and lesser than a Goose; having blacke legs and bill or beake, and feathers blacke and white, spotted in such manner as is our Magge-Pie, called in

some places a Pie-Annet, which the people of Lancashire call by no other name than a Tree Goose: which place aforesaid, and all those parts adjoining, do so much abound therewith, that one of the best is bought for threepence: for the truth hereof, if any doubt, may it please them to repair unto me, and I shall satisfie them by the testimonie of good witnesses."

Until comparatively recently the stalked barnacle was classed with the Mollusca, and it was only by studying its development that its true position in the animal kingdom was made clear. The barnacle leaves the egg as a Nauplius, and this is the great proof of its relationship to the Crustacea. The Nauplius of the barnacle has a carapace or shield-shaped horny shell, with a pair of anterior horns, a long spine in the middle of the back, and a long tail. It has three pairs of legs, the second and third pairs being forked, and on the last joints of these legs are numerous hairs of different lengths. The Nauplius has a single median eye, and its mouth is situated at the end of a long protrusible lip or labrum, between the bases of its legs, about the middle of its body. This description would apply in its essential points to the Nauplius of other members of the Crustacea, although every Nauplius differs much in appearance owing to the various shapes of the carapace, length of the tail, &c. The Nauplius of the barnacle casts its skin several times, feeding voraciously, and increasing greatly in size, laying up a store of fat in preparation for the next stages, during which it does not eat at all—just as a caterpillar prepares itself for the chrysalis stage. In preparation for the next stage, also, a new compound eye begins to form on each side the median eye, and the median eye begins to disappear; also a bivalve shell begins to form under the carapace. When the Nauplius has moulted for the last time, and attained its full size, it passes into the second or free Cypris stage; the carapace, with its dorsal spine, and long tail, is thrown off altogether; the first pair of legs become antennæ—they are inclined toward each other and grow out forwards, in front of the two compound eyes which we now have instead of the median eye; and the second and third pairs of legs disappear altogether, six new pairs of swimming legs being formed in their place. The protrusible labrum or lip disappears, and the tail is only represented by a short process carrying a bunch of hairs. The antennæ develop suckers, on the face of which is the opening of the duct of a gland called the cement gland, which secretes a sticky substance.

Now, up to this point the history of the barnacle shows advance and elaboration, instead of degeneration. This Cypris stage possesses antennæ, six swimming legs, and a pair of compound eyes; but the Cypris attaches itself by means of its antennæ, and its degradation then begins. This attachment marks the beginning of the third or Pupa stage, in which the creature is enveloped in a membrane, and is in fact very much like a chrysalis. Corresponding with the six swimming legs, but starting from much deeper

down in the body, six cirri, or tentacle legs, begin to make their appearance.

The next thing that happens is that the bivalve shell and pupa skin are thrown off, and the eyes disappear. The eyes are situated on stalks which project inwards into a groove of the body, which groove is lined with the external skin; as soon as the pupa skin and eyes are moulted, this fold of skin stretches out so that the animal assumes a new position at right angles to its former one, and which is the same as the position of the body in the adult.

From this time the part of the body in front of the mouth, which is in this new position the lower part of the body, begins to lengthen, and forms the long stalk of the adult. On the upper part of the body small hard plates appear, round which the different parts of the shell are afterwards formed.

Next the bunch of hairs on the tail are thrown off, and also the six pairs of swimming legs, leaving the six pairs of cirri or tentacles which have been forming underneath—and you have the adult barnacle.

Although so different in outward appearance, the stalked and unstalked barnacles are essentially the same in structure. In the barnacle, then, we have special adaptation of six pairs of legs as tentacles, special adaptation and complexity in the antennæ, and a special structure in the shape of a cement gland; but yet it is easy to see that on the whole the creature is a lower organisation, and most certainly it is adapted to less complex conditions of life. The abdomen, which in the lobster forms the greater part of the body, and which has a pair of legs to every segment, is represented in the barnacle merely by a long thread-like process, without appendages; and the adult barnacle has lost altogether the compound eyes which it possessed even up to a late stage of its development.

Besides true degeneration, which is illustrated by such an example as the barnacle, where, although on the whole the creature becomes lower than its original form, yet not through a general degradation of all its organs, but through degradation and elaboration working side by side, there is another way in which force of circumstances may produce degradation, and which may be called relapse. Sometimes a creature stops short in its development and remains as a larval form, just as if we imagined a lobster stopping short at the Nauplius stage, and living and reproducing itself as a Nauplius. Of course, individual development gives no testimony on this point, as the creature which has stopped short at some stage of its development will not include its former adult form in its developmental series. It is, however, probable that such relapse has taken place in many cases from the fact that many creatures which belong to families high in the scale of organisation, yet possess in the adult stage points of low organisation which are characteristic of a lower stage in the history of the race. And as the development of the individual is generally a more or

less complete record of the history of the development of the race—the earlier stages in the individual agreeing with the earlier stages in the race—so it is possible that the primitive points in these members of a highly organised family were points possessed by one of their own larval stages, and that their present adult form is a relapse into this larval stage. But also the possibility of this relapse has been established by experiment. Tritons or water-salamanders—more familiarly newts—undergo the first stages of their development as aquatic animals, breathing by means of gills; in the adult stage they live on land, the gills and gill-clefts disappear, and they breathe entirely by lungs. If the Triton is, however, prevented from leaving the water, it retains its gills, and lives and reproduces itself in its larval aquatic form. Another experiment of the same kind has been made with the Axolotl or Mexican salamander, which, however, is made to pass into a higher stage. The Axolotl is an aquatic form which breathes throughout its life by means of gills, and has half-webbed feet, and a dorsal crest or fin, like that of the newt, on its back and tail. By means of gradually accustoming the young Axolotl to a terrestrial life it may be made to leave the water altogether; its gills shrivel up, and it breathes entirely by lungs, and also the webs between the toes and the dorsal crest disappear; there are several changes in the arrangement of the bones of the head, and the colour of the animal changes. In fact, the creature becomes a land salamander, and is exactly like the Amblystoma, a salamander which is found in the United States. On this evidence it is not possible to doubt that Axolotl is a larval form of Amblystoma, and is a relapsed Amblystoma, which has not yet entirely lost the power of completing its development.

It is clear that the law of degeneration has had an important action in the world's history—that the possession by a nation of great wealth has too often the effect on it that an easily gained supply of food has on an animal: the powers, mental or physical, by which that wealth was gained are neglected and disused, and are soon lost, reducing the nation to a much lower state of development. What has happened may happen again, and certainly will happen again if the necessary conditions are fulfilled. Even we English are liable to stop short in the progress which we hope our nation is making, and not only stop short, but lose what powers and good qualities we have gained. It certainly will be, to a great extent, our own fault if we do, for we have the advantage of a greater knowledge of the laws of Nature, and their bearing on the human race; and we are beginning to appreciate more deeply the importance of the study of Science. We are beginning to feel that, as Professor Lankester says, "the full and earnest cultivation of Science, the Knowledge of Causes, is that to which we have to look for the protection of our race, even of this English branch of it, from relapse and degeneration."

A LETTER FROM THE COUNTRY.

[By a curious coincidence the following letter came into the hands of the Editors, and as it contains some remarks on the Mason College, perhaps it may be interesting to our readers. The Editors would gladly have cut the letter down still more than they have, but found some difficulty in doing it.—ED. *M.C.M.*]

My dear Maria,—You must, I am sure, have wondered how it is that you have not heard from me for so long a time, and you will be very surprised when I tell you the reason of my silence. It is not often that I have anything to tell you excepting the unexciting events of a village life; but I who am usually such a stay-at-home, have actually left my quiet home and paid a visit of some length in the Midland Counties.

I have often mentioned to you that I have some relatives living in Birmingham. They have repeatedly asked me to visit them. But I did not know them very intimately, and I knew that their views both in politics and in religion were very different from my own. I have frequently talked to my dear friend and adviser, our esteemed rector, about these relatives, and the desirability of visiting them, and he has generally ended the conversation by remarking, "Well, if these friends hold the views you describe, I think I would not visit them. You are a believer in Church and State, and an ardent admirer of the late lamented Lord Beaconsfield. I am afraid you might hear opinions which would greatly distress you. I have heard that Birmingham is a frightfully Radical town, and I must say I have no pleasant associations with it in any way." At sixty-five one is not much disposed to travel, and the advice of my rector and my own feelings combined made me decide that it was perhaps better not to alter my usual mode of life.

Do you remember, dear Maria, when you and I were at Miss Pettifer's excellent academy, we devoted a good deal of time to our improvement in the French language? One sentence that we wrote in our copy-book made a deep impression upon my mind—viz., 'L'homme propose, mais Dieu dispose." That proverb seems to express just what has happened to me. I had just finished my early dinner, and, before taking my usual afternoon nap, had carefully gone over in my mind all that the rector had said last night when I consulted him about a renewal of the invitation to Birmingham. I saw how much wisdom there was in all that he had said, and as I sat by the fire I reluctantly composed a polite and kind answer of refusal. Just as I was doing this I think I must have lost myself, for I don't remember hearing the front door bell, and I was somewhat flustered by hearing Jane say, "A gentleman, ma'am." I looked up and saw before me a tall big man, whom I never remember to have seen before. He soon enlightened me by telling me he was my cousin John from Birmingham, whom I had not seen for so many years. He said he had business in a neighbouring town, and he had called to see me, and he had made up his mind to take me back with him to Birmingham. You can fancy how it took my breath away. He would take no denial, and when I remarked I should want a few things in the way of dress, he said the girls could see to that, and that I could get a much better selection in a town than in a village—which is I daresay true; only I think Mr. Green, our draper, knows my taste in dress as well as I do myself, and he also knows the depth of my purse, which is an advantage.

I don't think I ever had what people call a strong will, and long before the evening came I had promised my cousin to return with him and stay a month. He left me the next morning (Tuesday), and said he would call for me on Thursday, and he seemed to think he had given me ample time to do everything. I suppose men can't understand how many things there are to be attended to before one leaves home. I need not tell you that I got very little sleep either Tuesday or Wednesday night. On Thursday my cousin was as good as his word, and he made his appearance at the time appointed. The journey was on the whole a pleasant one. My cousin bought me no end of

papers, but he forgot the *Standard*, which is the paper I usually read. It seemed to me a tremendous bustle when we reached Birmingham, but in a few minutes our luggage was put into what they call a car, and we were soon at my cousin's home. He has several children, and they all gave me a warm welcome, and I soon felt at home with them.

When we met at breakfast my cousin said he should give me a day or two to rest, and then I must see the sights. Accordingly, after two days' rest, we began . . . . . [Here follow descriptions of visits to various manufactories, Lichfield, Stratford, Warwick, Kenilworth, etc., etc. After descriptions of the Town Hall, the Council House, the Institute, etc., the old lady goes on to say]—

But I think of all the things I saw, I was most interested in Mason College. I remember reading about the opening of the College, and I read an account in the papers of the good old Sir Josiah. What a grand idea it was to spend his money on a college and an orphanage, instead of a fine house for himself.

Several of my young relatives have joined the classes at the College, so that I heard a great deal about it. They took me all over the building, and showed me the different class rooms; and one day they asked me to go and hear a lecture by one of the Professors.

They selected "Physiology," and, having asked permission, took me. Imagine my amazement when I got into the room at seeing three girls, and eighty medical students. The lecturer is a very young-looking man—much younger than I should have expected for such a position. He has a pleasant face and a clear good voice—just such a voice as that eloquent young curate of ours had, who always got so much more money at collections than anyone else did.

Of course I should have understood the lecture better if I had known more about the human body, but in our time it was not thought proper for girls to learn such things. The lecture was on the Eye, and now I know how it is you and I are obliged to wear spectacles.

I have always had a strong prejudice against mixed education, and Miss Beedy's excellent little pamphlet did not alter my views. But I must say, as far as my observation goes since I have been here I have seen no particular disadvantages, and the young people tell me they feel none; and I am told that the girls do quite as well as the men in the examinations.

They took me next to what they call the "Physics" lecturer. He is the most good-tempered looking man I ever saw; he looks as if he agreed with all the world, and all the world agreed with him. Of course he is a great favourite with all the students.

The last lecture I attended was on Mathematics, and I didn't understand a word. You will remember, I am sure, when our rector's son failed in what they called "the little go," that he came home with a gentleman who superintended his lessons, and they used to pass hour after hour making curious signs.

I saw a great deal of it, because they used such a quantity of paper in their exercises that the rector's housekeeper was glad for us to have some for lighting our fires. It was exactly this kind of thing that the gentleman did on the black-board. This professor looks sad and ill, but who can wonder at it if he is always thinking of such abstruse subjects? As I listened to him I thought if he spoke a little slower it would give his pupils a better chance of following him; but perhaps the minds of people in great towns move more rapidly than those of country people.

I heard the girls talking very frequently of "Union meetings," and I could not imagine for some time what it meant. One day they explained it to me, and offered to take me to a debate. The debate was on the Egyptian Question. I have heard the rector and our doctor discussing this question with considerable warmth, the former denouncing the Government, and the doctor defending their policy; but I never felt to understand the question sufficiently myself to join in the conversation. Imagine, then, my astonishment at seeing a young slip of a girl get up and read a paper on the Egyptian

Question. It wasn't as if there were only girls there. Some of the men were quite elderly. I confess when she got up I thought of that amusing remark of Sally Jones, when I was teaching my class one Sunday afternoon about the daughter of Herodias dancing before the King: she was so excited at what she thought a want of modesty that she exclaimed in the middle of the reading, "A bold forrerd little thing!" But I have learnt not to judge hastily. I met this young girl afterwards, and found her quite modest, and, if there is any fault, I think she under-estimates her powers.

I suppose it's because I am old and not accustomed to modern ways, but I must say that it did seem to me rather strange that when one of the Professors left the College for another position, this same young creature made a presentation of books to him and delivered an address. I should have thought one of the Professors would have been more suitable. You, I am sure, will remember that when Mr. Stringer, our writing master, left the town, and the young ladies made him a present, Miss Pettifer invited the clergyman, and he made a very eloquent speech on the occasion; but I find things are very much altered since we were girls.

Another thing will, I am sure, interest you and astonish you. Lately a College Magazine has been started. I have read a good many magazines, but I never thought at all before how much work there was in getting them out. Here again they have done a strange thing. Instead of putting it into the hands of one of the Professors, the Magazine is under the control of two young people, a boy and a girl. I can't help calling them so, although my young relatives laugh at me when I do. I am sure if you saw them you would call them so; but I notice they are always spoken of as the Editor and the Sub-editor, which is, of course, more dignified. I was rather curious to see these young people, and one day when I called at the College they were pointed out to me. The boy Editor is good-looking, but seems to have a world of care on his young face, and I don't wonder, for it must be a difficult thing to bring out a Magazine in such a manner as to please all his readers. The Sub-editor also looks young, but I am told she is clever, and quite able to manage the Magazine. She even goes to the Mathematical class.

[N.B.—Even attendance at a mathematical class is not always a guarantee for ability.—ED.]

I am afraid the length of my letter will tire you, and I have not sent half that I should like to. I am very glad that I paid the visit to Birmingham. When I return home I shall have very much to think of, and if you will come and see me I shall like to tell you much more than I can in a letter.

Up till now I thought the good old times were the best; but I see that young people nowadays have great advantages compared with what we had. In some respects the young ladies seem more childish than we were. One day my young relatives gave what they call an afternoon tea (in our village tea is always in an afternoon). A nicer set of young people I never saw, they were so kind and attentive to me, and so merry; but after tea, instead of sitting down to knitting or fancy work, as we used to do, they went into another room and actually played "Blind Man's Buff." The Sub-editor was one of the party.

The only thing I have heard that I really do very much dislike is what they call slang. Words that young girls use now would not have been allowed in our time, and it does seem to me a pity to spoil our language. Surely it is rich enough in expression without the use of these objectionable words. And now I must really leave off. I return home the latter end of the week, and shall be delighted to see you as soon as possible.

I am, your affectionate friend, MATILDA L——

P.S.—The rheumatism in my hands has been very troublesome lately.

[We wonder what length of letter the old lady would write if she hadn't any rheumatism. We quite forgive the want of respect for ourselves. At such an advanced age it is not surprising that she thinks us far too young to conduct a magazine.]

PHYSICAL CULTURE.

[Abstract of a Paper read before the Union, on Friday, 24th Nov., 1882.]

"Once upon a time" a large part of the present domain of the Indian Ocean was occupied by a fertile land, covered with the gorgeous greenery of the tropics, and this was the home of an important family of long-tailed apes, who regarded themselves as extremely "high-bred," inasmuch as they possessed the narrowest and most delicate noses of all the apes in the world, and in place of claws had adopted the entirely new fashion of nails.

Owing to this latter circumstance this highly cultivated family came to reside less in the trees and to spend more of their time on the ground, but here their fine tails came to be very much in the way; so they were gradually shortened and finally left behind altogether. Living so much on the ground, it was frequently necessary to stand upright the better to survey the neighbourhood—for though there were no hawthorn hedges in Lemuria, there were plenty of bushes and tall shrubs to be overlooked—and after a time one branch of the family came habitually to walk erect. They were thus enabled to see all around so much better, that they avoided their enemies most successfully and secured the best of food in abundance. Moreover, the constant carriage of the body wholly on the lower limbs caused these to be greatly increased in size and strength. And more important than all besides, the habit of walking erect promoted the use of the faculties of observation and reflection bringing about an unheard, of development of intellect.

So fruitful was this ancient Lemuria that its population increased enormously, and the stronger anthropoids spread widely over the land. One company wandered away northwards into India; whence those who were bravest and most fond of roving strayed still farther north, towards the high lands of Central Asia, where many of them perished from hunger and cold. But the more cunning ones in their extremity stripped the skins from their dead comrades, and wearing these outside their own both introduced the custom of dress and survived the cold of winter. Profiting by this experience, in other seasons, on the first approach of cold weather, these wiseacres deliberately looked about for other animals with warm coverings, whom they purposely slaughtered in order to use their skins for clothing. But the more they clothed themselves, the less nature clothed them, and their skins became less and less hairy, and more and more delicate and white.

The cold brought about still further changes—making these good folks much more sociable. For when the cold nights came on they found it wise to creep into some hollow tree, or into a cave, where they would huddle close together for warmth while they slept. But in the depths of winter the nights were so long that they could not sleep all the time, and it happened that evening and morning some of the younger fry took to entertaining the

company by imitating the cries of various animals, and by making such other agreeable sounds as they could master. In this they all presently became quite proficient, and were able to recognise each other by their voices, and ultimately even to communicate facts to one another by means of these sounds, so thus came about the Origin of Language.

However an excess of cold proved neither pleasant nor advantageous, and those who went still further north met with the least success, notwithstanding the constant use of furs for clothing, and the early invention of seal-skin jackets. Those again who remained in the warm regions of the south lived too easily, and they developed but slowly. But those of our friends who were situate between these two extremes of semi-starvation on the one hand, and luxury on the other, made the greatest and most continued progress, and spread in countless hordes, some to the east and others to the west. In this westerly direction wave succeeded wave of them, the weaker ones dying from fatigue or in fight, and the stronger continually coming to the front. Thus through a period of untold centuries a ceaseless Natural Selection of the fittest has prolonged the upward development of these pilgrims during their long long march from the ancestral home, now sunk beneath the sea. And this evening, within the walls of this theatre, we have—gentlemen will agree with me—a goodly number of very fair examples of the present results of this marvellous progress.

For this truly is a "marvellous tale"; but the marvel does not end here, for if so wonderful has been the history of the past, what shall we say of the boundless possibilities of the future? Be these what they may, we are assured by those who assume to know that the progress of the future will differ from that of the past, at least in this:—That humanity having now come of age will hereafter be less passive, and more consciously and designedly active in shaping its own destiny. In fact, this old story of Lemuria is filling men's minds, and they have distilled from it a somewhat contradictory theory of "the paramount importance of little things." It is affirmed that in this theory the great secret of infallible success has been at length discovered, and that we are now in a position to lay down the foundations of a true system of physical culture in its broadest sense, of a natural education, and a proportionate and all-round development. This is to be effected, not by a crushing weight of authority and precedent, nor by any revolution seeking to break abruptly with the traditions of the past, but by a simple patient study of the conditions of our existence, and by a stricter keeping of even the minutiæ of the laws of our being. And already great are the anticipations of the unimaginable glories which will accrue to us when we are fully alive to the unspeakable importance of this wise physical culture.

F. J. Cullis.

THE UNION.

February 16th.—Miss NADEN began by a brief description of the tendencies, with regard to science and speculation, of the first half of the sixteenth century. It was a period of change and rapid growth. Physical science was still in its infancy. The old learning was blind and bigoted; the new, crude, unsystematic, and presumptuous. Yet the true method of experiment and induction was beginning to gain ground, though its results were much obscured by mysticism and by blind reliance on authority. She next sketched the life of Paracelsus, who was born at Einsiedeln, near Zurich, in 1493, studied at Basel in his sixteenth year, and, after visiting the Universities of France, Germany, and Italy, led the life of a vagrant scholar, roaming through most of the countries of Europe, and gaining information from all who came in his way, as well as by his own independent investigations. In 1526 he was chosen Professor of Physic and Surgery at Basel. Some specimens of the arrogance of his style, showing his disdain for the classics of his profession, and for all currently-received views, were quoted. Owing to a quarrel with a church dignitary whom he had cured of gout, and who refused to pay his fee, he was dismissed from his chair, and resumed his errant life, sinking deeper and deeper into habits of debauchery contracted at Basel, and finally dying at Salzburg, in 1541. Miss Naden then gave an account of the chemical and physiological theories of Paracelsus. His chief practical service was the application of chemistry to pharmacy. He discovered the medicinal virtues of mercury, and made preparations of lead, antimony, sulphur, blue vitriol, iron, and arsenic. Salt, representing the principle of fixity, sulphur that of combustibility, and mercury that of volatility, were, according to him, the three elements of which all substances, including the human body, are composed. The just equilibrium of these is health—excess or defect of any, disease. Gold is the only metal in which they are mingled in true proportion. He thought that the motions of the human body were typified and prefigured in the skies, and that all nature was alive, and bore relationship to man. The form of a natural object was an index of its properties. All these views may be referred to his doctrine of Microcosm and Macrocosm, which asserted that there was a perfect correspondence, and possible communion, between the spirit of the Universe and the spirit of man. Modern science embodies many of his ideas, substituting Instinct, or Hereditary Aptitude, for Intuition, and regarding man as a true Microcosm, the human body being the world in which myriads of individual cells are born, live, move about, perform their functions, and die. In the interval for discussion Dr. TILDEN said that, although it was the practice of the Professors to abstain from taking part in the debates and discussions at the Union, he felt constrained to express his thanks to Miss Naden for the very great treat her paper had given him. He hoped that Miss Naden might be per-

suaded to turn her attention to some other worthies of the middle ages. He believed she was peculiarly well fitted for such a task, and that she would be rendering a very great service to the Union and to persons outside if she were to do so.—Dr. Tilden's remarks were warmly applauded, and after a few words from Mr. GREATHEED and Mr. CULLIS, the latter called upon Mr. GREATHEED to read his paper.

[Any of our readers who may wish to see Miss Naden's article in full will be glad to learn that it is to be published in the *Journal of Science*.—ED.]

Mr. GREATHEED took for his subject "The Union, a Sociological Study." Science may be defined as the knowledge of necessary sequences, and sciences differ among themselves according to the accuracy of their knowledge, the complexity of their factors, and their consequent power of prediction. The perfection of astronomy is due to the simplicity of its factors, and the astronomer is able to tell us the relative positions of the planets in the year when Rome was being founded, and where they will be at a particular second on the 7th of June, A.D. 2004, the period of the next transit of Venus. He presents us with a series of pictures, and between them all there is a causal relation. In a more complex science, Meteorology, innumerable sequences are mixed up so as to make prevision almost impossible, but we are beginning to conceive that any possible difference in the weather when Hannibal was crossing the Alps would have affected the weather in Birmingham in 1883. Psychology was then instanced as a still more complex science. "Can I not do as I like?" asks Smith, indignantly. "No, Smith," is the reply, "you are *obliged* to do as you like. "Your decision at any moment is the psychological product of the "nutritive tendencies transmitted to you by Mr. and Mrs. Smith, "which we call heredity; of the force in the shape of the food "which you have eaten; of the draught coming round the office "door, giving you rheumatism; of the cook, whose bad cooking "spoils your digestion; and of the wife of your bosom, who nags at "you—the food, the draught, the cook, and the wife all having "their necessary antecedents. From your cradle to your grave, "Smith, your life is predestined with a predestination surer than any "Calvin dreamt of." Turning to Sociology, Mr. Greatheed despaired of persuading anyone to accept it as a science who had not convinced himself of the predetermination of the career of a single individual, but he was sustained in his endeavour by calling to mind the ideal which the authorities of the College had set before them in the inaugural address of Professor Huxley. Sociology, in truth, had it within it to say, like a late Premier, "A time will come when you *shall* hear me." The lecturer then illustrated on the black-board the intrinsic and extrinsic factors which, in Mr. Herbert Spencer's opinion, were to be sociologically considered in the building up of nations. The growth of the Owens College Union was then dealt with as one to which the Mason College Union must bear a stronger resemblance than to the older societies,

unions being like men, "not the accidents, but the products of their time." The very high quality of its work excited the lecturer's admiration.

March 2nd.—Mr. CULLIS in the chair. Mr. C. GREENE read a paper on "Iron." This subject was taken as far as possible from a practical point of view. The ores of iron—magnetic iron ore, hæmatite, and clay-band—were described, and also the manner in which they were got from the earth. Arrived at the furnace, the ore is calcined. The ways in which calcination is effected, and the changes this produces in the ore were then explained. The simplest form of furnace is the primitive Indian furnace. The modern blast-furnace was then described in some detail. The daily working of this was referred to, and also the chemical changes occurring in the interior. There are three products from the blast-furnace—iron, slag, and gases. The metal occurs as pig-iron, wrought-iron, or steel. The properties of these were briefly referred to. The slag is of little use. It has been used for making bottles and for mending roads, and at the present time a Birmingham company is making bricks of it. The gases from the furnace, formerly wholly wasted, are now collected—the top of the furnace being in the most improved furnaces closed in—and used to heat the boilers and the blast. The way in which the latter is done, and the saving in coal thus effected were described. This concluded the paper, which was illustrated throughout by drawings on the black-board.—Mr. GREATHEED, in complimenting Mr. Greene upon his paper, referred to the excursion last June to an ironworks and coal-mine.—Mr. RATCLIFFE asked a question relating to blast-furnaces, and Mr. GREENE replied.

Mr. C. TUNSTALL then read a paper on "Hannibal." He chose this subject because he was anxious that some amount of literary spirit should make itself heard in the Union. The paper commenced with a short sketch of the administration of Hamilcar and Hasdrubal in Spain, and their organisation of the army which was to invade Italy. Under their tuition Hannibal gained all his experience in political and military matters. The story of Fabius and his toga was mentioned, and then the march into Italy was described, and the battles in the North. The ultimate failure of Hannibal's purpose, in spite of his first successes, is to be accounted for by the real insignificance of Carthage, which may fitly be described as a "political sore." Passing over the uninteresting period of the later years of the occupation, we turn to the campaign of Scipio, and defeat of Hannibal, or rather of Carthage, at Zama. Hannibal's attempt to head an Eastern coalition against Rome ended in the subjugation of the East by Rome, through the weakness of Antiochus. After relating the death of Hannibal, the opinion of Roman writers was given. They tried to cry him down, but we, who live in a more impartial age, can look back upon Hannibal as one of the greatest men in one of the most

important periods of the world's history.—Mr. DURRANT read some lines on the Fall of Carthage. These summed up the situation and, at the same time, expressed the individuality of the writer.

The CHAIRMAN then asked for an expression of opinion as to the desirability of holding weekly meetings next term. After some discussion it was decided to have fortnightly meetings in the summer term.

The CHAIRMAN proposed and the SECRETARY seconded an alteration to Rule iv., part 1, which would make it stand thus :—

1. The President, the Vice-Presidents, the Demonstrators, the Librarian and Secretary of the College shall be honorary members; and all such persons as shall be elected by the Union on the nomination of the General Committee.

The CHAIRMAN proposed and the SECRETARY seconded an alteration to Rule xv., which would make it stand thus :—

XV. The Ordinary Meetings shall be held on alternate Fridays, at which—

i. Minutes of previous meetings shall be read and confirmed.

ii. New members shall be elected and other private business transacted.

iii. The programme arranged by the Committee shall then follow.

Both these alterations were agreed to.

Mr. C. Greene and Mr. Vinrace were elected members.

OUR CONTEMPORARIES.

We acknowledge with thanks the receipt of *The King Edward's School Chronicle*, *The Marlburian*, *The Eagle*, and *The Midland Institute Magazine*. *The Eagle* contains several excellent articles, and a long account of the celebration of the Founder's Day at Bedford. Dr. Tilden was present at the dinner, and responded to the toast of "The Old Boys."

The Midland Institute Magazine, as usual, contains a good amount of poetry and two articles on foreign travel—one on Bohemia, and the other on the "Pays Basque."

The King Edward's School Chronicle contains an amusing account of a debate on the higher education of women. One gentleman stated that his objection to higher education for women was that ninety-nine women out of a hundred were incapable of receiving its advantages, and the one remaining woman was shattered by its effects. We are really sorry that the speaker has had such mournful experiences, and hope that he may some day slightly modify his views on this subject. The Editorial article hints darkly at the disadvantages that the establishment of a High School for Girls may bring upon the classical school in New Street. Perhaps it would be unfair to hint that there appears to be "a general mania" on the subject of education for women among the writers for *King Edward's School Chronicle*, but such might be the impression produced on the mind of an outsider.

SCIENTIFIC WOOING.

I was a youth of studious mind;
Fair Science was my mistress kind,
And held me with attraction chemic:
No germs of love attacked my heart,
Secured as by Pasteurian art
Against that fatal epidemic.

For when my daily task was o'er
I dreamt of $H_2 SO_4$,
While, stealing through my slumbers placid,
Came Iodine, with violet fumes,
And Sulphur, with its yellow blooms,
And whiffs of Hydrochloric Acid.

My waking visions, thoughts, and schemes,
With wildest hope illumed my dreams,
The daring dreams of trustful twenty:
I might accomplish my desire,
And set the river Thames on fire
If but Potassium were in plenty!

Alas! that yearnings so sublime
Should all be blasted in their prime
By hazel eyes and lips vermilion!
Ye gods! restore the halcyon days
While yet I walked in Wisdom's ways,
And knew not Mary Maud Trevylyan.

Yet nay! the sacrilegious prayer
Was not mine own, oh fairest fair!
Thee, dear one, will I ever cherish:
Thy worshipped image shall remain
In the grey thought-cells of my brain
Until their form and function perish.

Away with books, away with cram
For intermediate exam.,
Away with every College duty!
Though once Agnostic to the core,
A virgin Saint I now adore,
And swear belief in Love and Beauty.

But when I meet her tranquil gaze
I dare not plead, I dare not praise,
Like other men with other lasses;
She's never kind, she's never coy;
She treats me simply as a boy,
And asks me how I like my classes.

I covet not her golden dower,
Yet surely Love's attractive power
Directly with the mass must vary;
But ah! inversely with the square
Of distance—shall I ever dare
To cross the gulf, and win my Mary?

So chill she seems—and yet she might
Welcome with radiant heat and light
My story, if I once began it;
For is not e'en the whitest star
That gleams so coldly from afar
A sun to some revolving planet?

My Mary! be a solar sphere!
Envy no comet's mad career,
No arid, airless lunar crescent:
Oh for a spectroscope to show
That in thy gentle light doth glow
Love's vapour, pure and incandescent!

Bright fancy! can I fail to please
If with similitudes like these
I lure the maid to sweet communion?
My suit, with Optics well begun,
By Magnetism shall be won,
And closed at last in Chemic union.

At this I'll aim, for this I'll toil,
And this I'll reach—I will, by Boyle!
By Avogadro, and by Davy!
When every science lends a trope
To fire my love, to feed my hope,
Her high disdain must cry "*Peccavi!*"

I'll sing a deep Darwinian lay
Of little birds with plumage gay,
Who solved by courtship life's enigma;
I'll teach her how the wild-flowers love,
And why the trembling stamens move,
And how the anthers kiss the stigma.

Or, mathematically true,
With rigorous logic will I woo,
And not a word I'll say at random,
Till, under syllogistic stress,
She falter forth a tearful "Yes!"
A sweet *Quod erat demonstrandum.*

C. C. W. N.

COLLEGE WORK.

PHYSIOLOGICAL DEPARTMENT.

In sending in a few notes this month, a physiological explanation of some commonplace daily experiences given in the class may be interesting.

In nearly all nations, and among all tribes, the infant's first words are "Ba," "Pa," and "Ma," and these always become associated in some way with "Mother" and "Father," the child using this, his only vocabulary, to call those attending him, naturally his Mother and Father. The reason he can articulate these words before any others, is that the lips are the first part of his vocal apparatus to be developed, and "Ba," "Pa," and "Ma," are essentially labial.

It is due to this fact that "Ma" and "Pa" are habitually used for Mother and Father.

The senses of smell and taste, though quite distinct, are curiously confounded. The sense of smell is attributed or referred to a substance at a distance. Not so with taste: this sense is localised in the mouth. Hence a substance in the mouth that can only be smelled would seem to be tasted, the sense of smell being referred to the mouth, and the brain conceiving it as flavour. A simple experiment in the class showed this to be the case.

Two students being carefully blindfolded, a piece of onion and potato were passed between the lips into their mouths respectively without admitting any air, the nose being at the same time stopped in front by holding with the hand, and behind by the soft palate, so that no breathing could take place.

A number of fruits were mentioned, and when asked which they held in their mouths, they could give no answer, being unable to smell.

On allowing a little air to pass into the nose, the nerves of smell were affected, but referred the sense to the mouth, and gave rise to the impression of taste, and in one case to a distortion of the face.

This fact accounts for the apparent loss of taste, really of smell, when one has a cold.

CHARLES GREENE.

GEOLOGICAL DEPARTMENT.

Students and friends of the College who are really interested in the work that the College is doing would do well to scan the various pamphlets which lie upon the Magazine-room table. A treatise "On the Girvan Succession," by Professor Lapworth, is now there. It embodies the result of much labour and skill devoted by Professor Lapworth to the faulted region of Girvan, and was read before the Geological Society, London, June 7th, 1882.

WALCOT GIBSON.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Sir,—I have read with much interest the paper upon "Spelling" which appeared in the February number of this Magazine. May I supplement its amusing list of orthographical blunders by quoting two others of a similar nature, both of which I have on excellent authority? A lawyer received a letter from the son of an old client, beginning with this somewhat startling sentence: "Sir,—My father is dead, and I am his *executioner!*" Happily, what followed made it clear that the self-accused parricide was only an innocent *executor*. My second example is equally distressing, though somewhat less awful. A schoolgirl was writing from dictation a celebrated line in "The Giaour," which (being of a practical and sanitary turn of mind, and doubtless wishing to enforce a wholesome lesson where the poet had only uttered a vain lament), she rendered thus—"'Tis grease—but live in grease no more!"

I am, sir, yours truly,
C. C. W. N.

To the Editor of the *Mason College Magazine.*

Dear sir,—Since the appearance, in your last issue, of my paper on "Spelling," a possible explanation of constitutional inability to spell has been offered by the Professor of Physiology.

This explanation rests on the fact that there appears to be a marked connection between an inability to spell, and a defect in the eyesight termed astigmatism. This defect is due to a greater curvature of the eye in one meridan than in others, and in consequence vertical and horizontal lines crossing each other cannot both be focussed at once. The indistinctness of vision thus resulting may prevent that accurate observation of the appearance of written words, which is practically essential for correct spelling. It is to be hoped that the results of the investigations which are now being made by the Professor of Physiology as to the association of these defects will be recorded in your pages, the matter being one of much interest. It has been, moreover, suggested to me that children whose accuracy of observation is cultivated by drawing lessons are much less liable to spell incorrectly than those who are not so trained.

How far this is borne out by experience I am not aware, and should be very glad of any information on this point.—Yours truly,

I. C. EVANS.

To the Editor of the *Mason College Magazine.*

Mason College,
March 4th, 1883.

Dear sir,—May I, through your columns, call attention to a subject which concerns all who are interested in the welfare of the Magazine—I mean to the character of its contents?

There seems to be a pretty general feeling that this should be of a lighter kind. There are doubtless many students who could afford us literature of a more vivacious tone, but who are perhaps "a little backward in coming forward."

May I suggest that Holiday Notes, and personal experiences of the students should be contributed? The Magazine "edited by the students of Mason College" should represent the student life.

The Magazine is a fine infant, but as it grows older this infant, in order to flourish, must have a mixed diet.

I am, sir, yours truly,
CONSTANCE E. BODINGTON.

[We are much obliged to Miss Bodington for her suggestion relating to "the holiday notes," and we shall be glad to receive any such papers from the students for the May number.—ED.]

ERRATA (Feb. Number).—Page 30, line 7, for "flour" read "*grist;*" line 8, for "flour" read "*grist;*" line 9, for "bread" read "*flour;*" page 44, for "Indian rubber" read "*India rubber;*" for "Mailburian" read "*Marlburian.*"

OUR LIBRARY SHELVES.

UNTERSUCHEN ÜBER DEN MECHANISMUS DER GEBIRGSBILDUNG, von Albert Heim [RESEARCHES IN THE MECHANISM OF MOUNTAIN-FORMATION, by Albert Heim, Professor of Geology in the University of Zürich, Switzerland].

The science of Geology, like all other sciences, advances by easy and insensible gradations from stage to stage. It develops by the quiet accumulation of facts, and the patient unveiling of those grander links of natural causes which account for each allied group of phenomena, and unite them all into a complete and consistent whole. Its disciples are scattered all over the world, each busied, in his own little way, in collecting material, and in laying before his contemporaries an account of the geological structure of his own special district.

But it is given to very few to discern those majestic laws which lie at the source of origin of these phenomena. It is not sufficient that the observer is filled with an absorbing enthusiasm for his subject, that he has the past and present of his science at his finger-ends, that he has an almost unlimited amount of leisure, and that he resides in a district where all the phenomena he desires to investigate are fully displayed. He needs, in addition, an eye trained to observe the minutest details, a power of generalisation sufficient to enable him to group them at a glance in their proper inter-relationships, and a mind so calm and controlled that he will test his most certain conclusions again and again before giving them to the world.

Only three or four times in the history of the development of the science of Geology have all these desiderata been combined in the person of a single individual, and in each case the result has been a master-work. At the end of last century, Hutton, in his "*Theory of the Earth*," taught us that our present continents are formed of the ruins of those of the past, and that our visible earth surface is merely the ephemeral result of the mighty conflict between the internal earth-forces upheaving from below, and the external meteoric forces degrading from above, and that to this conflict there is no trace of a beginning or sign of an end. In the early part of the present century, William Smith, in his "*Strata Identified*," showed us that our earth-crust is actually made up of a series of volumes of history, laid one upon the other in natural order from the oldest to the youngest; and that in these volumes we have an account of the physical and vital development of the earth surface and its inhabitants, from the dawn of animated existence to the age of man and mind. Lyell, at the middle of the century, in his equally famous "*Principles of Geology*," for the first time made us aware of the true power of the three great geological agents of heat, air, and water; showed us how they act in the present; and demonstrated the fact that working harmoniously together they were able to perform all that has been accomplished in shaping and reshaping the earth-surfaces of the past.

But what is the mighty agent that raises the block for the carving? In other words, how are the continents uplifted, and what are the laws that rule in land upheaval and mountain-making? This is the grand question to which geologists have sought for a satisfactory reply since the issue of the "Principles," and many have been the ingenious guesses at the answer.

Of all the bold attempts yet made to solve this fundamental problem, by far the most ambitious is that made by the author of the work named at the head of this notice.

Professor Heim has the rare advantage of living on the slopes of the newest and grandest of all the mountain ranges of Europe, and within sight of that special area within it where all its most complicated phenomena are most magnificently displayed in the walls of the gorges, the cliffs of the lake valleys, and in the mighty mountain peaks of Central Switzerland. He is a pupil, too,

of the great Escher von der Linth, perhaps one of the first of the mountain geologists of the century, and was his daily companion in his excursions and investigations in the district. He has also been employed for some years upon the official geological survey of the country, and he has every important detail of its remarkable structure by heart. He is an excellent artist, and a writer of wonderful clearness and force of description.

His work, which consists of two large quarto volumes and an accompanying atlas of plates, has recently been added to the geological section of the library of the Mason College. It is perhaps the most philosophical work in geology that has appeared since the issue of Lyell's "Principles." In the first volume the author describes the various geological formations found in the complicated district of the Tödi and the Windgälle mountains. He shows how wonderfully the strata have been folded and crumpled together in the great earth movements by which the Alpine ranges were formed, and how they have since been slowly carved by rain, river, and glacier into the lovely forms they now possess.

In the second volume he applies the results gathered in this especial region to the investigation of the essential laws of mountain-making. Stage by stage he patiently lays the facts before us, beginning with the simplest, and passing onward and upward to the more difficult and complex. Stage by stage he follows the growth and evolution of the mountain range; for every visible result he seeks the cause, till at last his scheme is practically complete, and he develops a general theory of mountain-making explanatory of the structure and evolution of the entire Alpine range, and of necessity capable of application in the study of all the mountain ranges of the globe.

The fundamental cause of mountain-making he discovers in the slow cooling and contraction of the internal parts of the globe, and the consequent sinking and crumpling of the already cold and hardened exterior.

It is to be regretted that there is as yet no English translation of this work, which we have no doubt is destined to stand side by side with the great classics of geological literature. Whether the final conclusions advanced in the book stand or fall can only be settled by future investigation; but it should be carefully studied by every advanced geologist for its marvellous facts, the orderly arrangement of its materials, the beauty and clearness of its language and illustrations, and the breadth and freshness of its far-reaching conclusions.

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THE Mason College Magazine

EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM

APRIL, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

"JOURNAL" WORKS, TYP.

APRIL, 1883.

Monday,	16.—
Tuesday,	17.—Summer Term begins.
Wednesday,	18.—Committee Meeting.
Thursday,	19.—
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Saturday,	21.— [by H. T. C. S. Ledsam.
Monday,	23.—Shakespeare Term. Medical Summer Session begins.
Tuesday,	24.—
Wednesday,	25.—
Thursday,	26.—
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MAY.

Tuesday,	1.—
Wednesday,	2.—
Thursday,	3.—Sociological Section of Natural History Society meets.
Friday,	4.—Union Meeting. Debate: "That the adoption of a vegetarian diet
Saturday,	5.— [would be advantageous to Society."
Monday,	7.—
Tuesday,	8.—
Wednesday,	9.—Committee Meeting. Meeting of the Council.
Thursday,	10.—
Friday,	11.—Sir John Herschel died, 1871.
Saturday,	12.—
Monday,	14.—
Tuesday,	15.—May Number of *Magazine* published.

NOTICE.

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The price of each copy will be 6*d*. The yearly subscription will be 4*s*. 6*d*. 5*s*. post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 4, Vol. I. APRIL, 1883. Price 6d.

IS THE INCREASING PREDOMINANCE OF BRAIN OVER MUSCLE CONDUCIVE TO NATIONAL WELFARE?

When St. Francis of Assisi lay dying, he looked at his wasted body, martyred by self-imposed penances, and exclaimed, "I have sinned against my brother, the ass." In these days, when no philosophy without a solid foundation in physical science can gain attention from any trained thinker, we have outgrown that contempt of Matter as inherently vile, which is not less evident in the saint's confession than in the sin confessed; yet this error, discarded in theory, tends more and more to creep into practice. We do not indeed adhere to the old antithesis of "spirit" and "flesh." Our fault is far less excusable than that of the old ascetic, who honestly believed that the health of the soul was inversely proportional to the health of the body, and never dreamed of the close sympathy which we know to exist between the organ of mind and all other organs, or of its dependence upon their activity for food and fire. He cannot be blamed for shaping his life in accordance with his creed, spite of the flash of dying insight which yielded him a glimmering of the truth. The tyrannous soul was a destroying angel who might clear away corrupt humanity by famine or pestilence, and lose nothing by the deed; the tyrannous brain is a planter who starves his slaves, and thus prepares starvation for himself, or bequeaths it to his heir.

In attempting to answer the question which stands at the head of this paper, I shall not appeal to historical analogies, although not a few lie temptingly ready to my hand. The decline of States may always be referred to so complex a variety of causes, frequently chronological and climatic, that it is well-nigh impossible to isolate any single factor, and to trace its bearing upon the destinies of a nation. In the present case the problem will be greatly simplified by a preliminary consideration of the conditions of individual rather than of national welfare. Yet, though it is obvious that no community can be healthy if its members be diseased, I must begin by pointing out an imperfection in the analogy thus suggested between a State and a compound organism, built up of cells diverse in structure and function, yet all contributing to the general good. We have here one of those similitudes which too often ruin those unconsciously poetic reasoners who exchange all their intellectual silver and gold for the flimsy currency of metaphor, and find, too late, that their notes are not reconvertible into coin of the realm. In the body, everything is gained and little lost by the highest degree of specialisation. A nerve-cell is not worse, but better, for having lost the powers of contraction and locomotion which belong to its distant relative, the amœba. It is no detriment to the ear that it cannot see, to the eye that it cannot hear. Nor would either of these organs be in the least advantaged by the possession of that power of thought which is the prerogative of the brain.

But a human being must be injured by the weakening or withdrawal of any of his faculties, even though others may be developed and strengthened. His maimed life cannot be made whole by the services of his nearest neighbours, or by any conceivable system of social or political co-operation. Two half men do not make one whole one; nor can the individuals who compose a State enjoy life vicariously by a central brain which thinks and feels for the insensate extremities. Now, a person who cultivates mind at the expense of muscle, is sure to suffer in some degree from two kinds of specialisation, which may be distinguished as primary and secondary. The primary, to which I shall again refer later, consists in development of the mental and deterioration of the vital functions; the secondary in that narrowing of interest to some one department of thought or knowledge, by which alone a man of talents naturally mediocre can hope to win any reputation as scholar or scientist. A mind of great original genius may rise through details to generalities, and take a bird's-eye view of the

broad field of Nature; but such minds are always few and far between, and the ordinary mortal must keep working away at his own potato-plot. This necessity tends to become intensified, rather than to disappear. The enormous expansion in modern times of the Physical Sciences has introduced so many new factors into the great problems of life, that the majority of thinkers and students must needs content themselves with plodding doggedly at a few subsidiary puzzles. Thus not only does each sect of workers break up into divergent groups, but the members of every group acquire habits and interests which put them more and more out of sympathy, first with the community at large, next with the sect from which they have just separated, and finally with each other. Divisions thus caused are profound and irremediable. The very democracy of intellect is parted from outer barbarians by a gulf far deeper than that which parts the aristocracy of wealth or rank from social inferiors. For neither rank nor wealth need affect the basis of human nature; but the special bent of the intellect must organically modify the whole character. Not unfrequently minds deformed by unsymmetric education sincerely desire to gain that perfection of which they have been cheated; but generally in vain. They can at best study the feelings of the rest of mankind as they would study a dead language. It may be replied, that the diffusion of knowledge must act, not upon one class, but upon all classes, and must tend to efface lines of demarcation rather than to engrave them more deeply. We will not level down—can we not "level up"? Again I encounter a false though pleasing metaphor. I freely admit that parts of the lowest social strata may be upheaved, and take their place among the higher formations. But this does not occur with any regularity, or on an extensive scale. To quit parable, it must be acknowledged that where there is rough work to be done, there must be rough workers to do it. Elementary education will usually exert but little refining influence; and for one unit of variation in the mind which has mastered the "three R's," with a smattering of geography, history, and perhaps even French, there will be a thousand units of variation in the intellect of the systematic student. Education may progress in both cases, but it progresses neither in equal ratio nor in the same direction. The hierarchs and heresiarchs of science or literature may anathematise each other to their hearts' content, but both will refuse communion to the benighted heathens who are ignorant alike of orthodoxy and heterodoxy. Enjoyment of physical exercise, delight in physical strength, admiration of physical

courage can no longer serve as bonds of union, being disdained by the very class which most needs them to counteract the effect of sedentary studies.

This brings me back to the physiological argument with which I started. At first sight it may well appear that a man in whom the higher functions are active, and the lower torpid, is an enviable and admirable being. His legs are not of much avail as organs of locomotion, nor his arms of any great use as levers; but he can manage to walk to the bookcase and reach down a volume. Though his digestive apparatus is out of order, scientific attention to diet may save him from the keener pangs of dyspepsia; and if not, he will be able to chronicle and account for his symptoms, to paint lurid pictures, or to write pessimist philosophy, according to the bent of his genius. Servants are perhaps at hand to supply all his wants; and there may possibly be a carriage which seems a good substitute for the wasted limbs. Yet, after all, he is only an unhealthy fraction of a human being, with heart so languid that it can scarcely send sufficient blood for the necessities of the overtaxed cerebrum; with appetite so small, respiration so feeble, and muscles so flabby, that the vital combustion which gives heat and energy to all the tissues must soon cease for lack of fuel and of oxygen. A little reflection will show the reason of this. If any organ be disproportionately active, it receives more than its proper share of nutriment, and other organs of course receive less than their proper share, since the body is not a machine with unlimited capacity for work and for assimilation. But this state of things cannot long continue. It is all very well for a merchant to buy in the cheapest and sell in the dearest market; but if producers become too underfed and enfeebled to supply his goods, and consumers too impoverished to demand them, he must very soon become insolvent. So in the human economy. If heart, lungs, and stomach be insufficiently nourished, there will be failure of circulation, respiration, and digestion. By degrees this weakening of the whole system must tell upon the brain, which will receive a tribute of blood small in amount and poor in quality. Vitality will be lowered, and depression of spirits, alternating with feverish excitement, be substituted for the equable cheerfulness of mental and physical health. Under various forms and in different degrees, cerebral tyranny is thus affecting, not merely a small minority of professed literati and savans, but thousands who seek a livelihood at the hands of Science or Literature, and are tempted to strain their faculties to the utmost,

disregarding everything save immediate success. All these probably suffer more or less, though they may not be thrown out of the running, nor altogether lose the power of labour and enjoyment. But they are borrowing on the future. They are the fathers and mothers of the next generation, to whom the enfeebled constitution and the excited brain will descend as a heritage of woe. Is not this, in the truest sense, a national calamity? For a time, indeed, the effects of intellectual intemperance may be pointed to with exultation by short-sighted enthusiasts. "Look," they say, "at the books poured from the press; contemplate the conquest of nature achieved by modern science; behold the literary and artistic luxuries of other days, now brought within the range of the shopman and mechanic." All this I grant. National diseases are usually slow in progress, and masked by contradictory symptoms. Until the final collapse, the brain will seem to work miracles for the general welfare, even caring tenderly for its poor servant the body. It bestows wealth to atone for the lack of health, and instead of moral concord gives abundance of material communication by steam and electricity. For its own recreation there are pictures, and music, and novels; if, indeed, eyes and ears be not too tired to look and to listen. But happiness—"our being's end and aim"—depends upon two conditions: the capacity of enjoyment, and the presence of something to be enjoyed. The former is to the latter what the peptic glands are to food, or what the retina is to light. Day will return after the darkest night; but when the eye is quenched, the noonday sun shines in vain. Light can be restored, but rarely sight. In theory we admit this. In practice we say, "Here is a splendid illumination; what matters it that you are blind?" Or, "Take your dinner, and don't talk sentimental nonsense about your digestion." Yet anyone but the most bigoted of misnamed utilitarians should see that if life be not worth living, neither are the adjuncts of life worth providing. Ill-gotten gains will not prosper; and the brain will be poorer, not richer, if it steal from the muscles their rightful means of subsistence.

I have now tried to show that the increasing predominance of mind over muscle is prejudicial to national welfare, because it promotes excessive specialisation, thus contracting the sphere of human sympathies, and widening the breach between the classes of which a nation is composed: and also because severe and continuous exercise of the brain tends to the disuse and consequent atrophy of other parts of the body, inducing an unhealthy condition which must in time react upon the organ of mind. The heart—

which is a muscle—will revenge itself upon the brain. A nation which has forgotten how to enjoy, will soon forget how to think—and the sooner the better.

CONSTANCE C. W. NADEN.

A REPLY.

St. Thomas of Cheyne Row, Chelsea, found pleasure in recalling, after a forty years' abstinence, certain child-learnt utterances of desire and obedience. Talismanic though they be against the whirlpool of pessimism into which this problem tends to plunge us, I can only hint that, in anthropomorphic guise, they teach the limited quantity of energy, whether kinetic or potential, at the disposal of any one human being. I might, however, further illustrate their purport by the complete submission of Mr. Romanes's monkey to the chain which bound him, and the hand which held it.

Endeavouring to accept, for the nonce, that the present predominance of man *is* for England an unmixed evil compared with some more idyllic life, can we negative the predominance? Will the dial of Ahaz learn to record grumble-pressure, is the sun to part with less than 7,000 horse-power per square foot, and can we coax the moon to apply a more summary tide-break? Is not the descent upon us more forcible than that of the Goths and the Normans, irresistible as the wave of New Learning which enthralled Erasmus, swept a clean foundation for our schools, and ultimately snatched from us the doubtful privilege of paying cash for indulgences? When the clerk of the international racecourse announces a steeplechase, would it look well to run, *pas seul*, a modest flat race? Will less mathematical gunnery advance our interests; France and Belgium be saddened if we unchemically waste our natural wealth? Shall we muddle our diplomacy to gratify Russia, and promote German waiters to save brain tissue at Woolwich? Is it the navy or the commissariat which should be less skillfully organised? To which of our children asking for the bread of life shall we hand the unassimilable stones of unstudied sequence? And can it really be more culpable to work for a degree than to take the Queen's shilling in a fit of drunkenness? Nay, we must see that an intellectual Gulf Stream cannot be deflected, and that no wise Canute will cry "Back!" to the spring-tide of a century, unless, by this *reductio ad absurdum* method, he may teach his senators wisdom.

But perhaps international convention might restrain the competition of kingdoms, and, indirectly, that of individuals. Unfortunately, no nation would be of the same mind for two years together. Persuade the unit that he will be wealthier, if less clever than his neighbour—prove to him that life is a curse, that the more skilful adjustment of acts to ends increases misery—and we could at once found our Society for the Propagation of Catholic Stupidity. "Thou shalt not compete" would at once take its place in the week-day decalogue. Till then we must continue to believe in a law re-discovered by Darwin: "To him that hath shall be given, and from him that hath not shall be taken away even that he hath."

At Mason College we may perhaps assume this axiom of modern biology. We are children of successful warriors, who have with every imaginable weapon won the inheritance of adaptability. The patriarchal amœba crawled faster than his fellows; the automatic mudcart, being sooner fed, his seed (by fission) necessarily possessed the puddle. But, in the ear of faith, the multitudinous wailings of his less active compeers still sound: "Is it possible that the increasing predominance of undignified jellydom should be conducive to amœbic interests?" But not long after, a new cry was heard in the depths: "Behold! I have a stomach," became the supremest and most God-like boast of the day. But list! again the microphonic wailing: "Presumptuous Gastreada! do you know that the Great Conservative party are positively succumbing to their attempts to achieve an internal cavity." But the merry apes only smiled, weaving myriads of microscopic shrouds.

Perhaps the loudest outcry made itself felt when some of the anthropoid apes took to two legs: "Is it not self-evident that, if the hind legs be disproportionately active, they receive more than their proper share of nourishment. This state of things cannot long continue. You will be an unhealthy fraction of an anthropoid ape, with heart so languid that it can scarcely send sufficient blood to the over-taxed hind legs. The vital combustion will soon cease. See! under various forms hind-leg tyranny is thus affecting thousands who dare to look over the scrub, and to reach for the juicy fruit. They are borrowing on the future, and the enfeebled fore legs and the excited hind legs will surely descend as a heritage of woe."

Can we doubt that some grey-headed anthropoid solaced himself in this stress by thinking these matters are arranged for us, and that no poor ape can be made responsible for the reckless concentra-

tion of matter, nor, belike, for the inconsiderate dissipation of energy?

Having found reason to doubt, on general grounds, whether an anti-evolution Blue-ribbon movement is necessary or feasible, let us deal with facts relating to the circulation. The brain is, we know, a very large blood-consumer, and one-fifth of the amount in the body is sent thither. Limbs may be removed by an operation, or paralysed in early youth, or indeed may never have existed, as in the case of an ex-Irish member who used to be carried into the House. But still the brain will call upon the heart, and the heart will not fail to respond. Clearly, limb activity is no *sine qua non* to health. Let us note that at an early stage of the race a form of specialisation, which we should now be sorry to lose, has not taken place. To no organ in particular is assigned the all-important distribution of the blood. Casual movements assist the material backwards and forwards in rude channels, till little by little muscularly-coated ducts take the place of body movements. The parallel arteries unite, they grow bulbous, twisting so as to form a V; the knot grows more and more muscular, and we now have a mass of specialised tissue, weighing half a pound, with the sole function of propelling food. Why this specialisation, if we are to continue our old habits of tilting the blood about by locomotion, of squeezing it onward in the veins by the pressure of adjacent muscles? When the heart is young and has but partially learnt its duties, it may require the aid which it had in the ancestral past; but with each year of manhood, till senile atrophy sets in, the heart's weight and strength increase. We need not then deny ourselves the privilege, which every kitten and puppy enjoys, of getting staider and wiser, and letting our head save our heels.

But it is in political economy that the fiercest fight will be fought between the adherents of a permanent and a transitional humanity. The cellular analogy has been very properly stated to be in some respects misleading. A society has no brain, and if the convenience of the unit was not served by aggregation, they would of course segregate. Yet none the less aggregation, running *pari passu* with specialisation, is more and more the fact. The "good all-round" man—cook, tailor, hunter, medicine-man, and priest rolled into one—laid his prehistoric bones in Kent's cavern, and has not since been seen in society. Acting by ancestral proxy, I relegated to the gardener the task of root-grubbing, that my less horny hands should be fitter for writing. Instead of perpetually adjusting the flicker of a grudging wood-fire, I pay a gas bill once

a quarter; and the ogre-like enthusiasm that fires the butcher boy sets my thoughts free in more sympathetic direction. If I would help my neighbours and myself, I must learn to be the 50,000th part of the Birmingham Directory; and the 49,999 things which I cannot do for myself make up a silver cord not quickly loosed. If all humanity turned out a never-varying product, "to know thy work and do it" would indeed be easy; but rods and fibres have to be counted, and industrial chinks peered into to find some human want that other eyes have not been quick enough to spy and satisfy. If, then, the aim and beauty of life is to find out wherein one is different from one's neighbours, may not an enlarged carotid's deeper cerebral fissures, necessarily correlated to the placid muscle, of a scholar, as legitimately determine a career as the vocal chords of a Sims Reeves, or the biceps of the prize-fighter.

A few words of counterpoise may make a judge's verdict not absolutely necessary. Man, in his lifetime, repeats the ancestral stages; in his youth he is more of an animal and less of a man, and until he is thirty he may unshamedly enjoy his lawn-tennis without prejudicing his ultimate chances of the purest and highest psychical bliss—an armchair reverie. But the ancestral stages ever abreviate themselves; the clodhopper's life grows less and less a possibility; and when our schoolboys choose, as they will, for their pleasantest aspiration, the fame of a Newton or the career of a Comte, we shall come to look upon cerebral ailments as more trivial, temporary, and manageable than colds in the head.

W. GREATHEED.

HERO-WORSHIP.

We have reached a point in time when, owing to external facilities (steam-travelling, steam-printing and the like), both minds and bodies meet continually—when centralisation and organisation can give to every man a mirror of the world, where he may scan at large or in detail the thoughts and deeds of other men.

A man's thoughts take the form of books, and should those thoughts interest or please his brother-men, the "book" goes through a series of "editions." And so it comes to pass that whoever has anything to give, gives it to all who care to ask for it; and as a natural consequence of this lavish supply and enormous variety, we, like spoiled children, lose our sense of the value of these gifts, we find the kind of sweetmeat—intellectual or otherwise —which suits our palate and gorge to our heart's content. Novel-

readers have their pet authors, churchgoers their pet preachers, and specialists generally their pet hobbies. These minister only to the individual's pet fancies, these they appreciate or even reverence in an egotistic sort of fashion; for the rest they have no *appreciative* reverence—what reverence they have is at second-hand.

Many of us again, think we are above such miserable toadyism, that, in this electric-lighted nineteenth century, we need follow no person, creed, or prescribed *modus vivendi*. We are free to pick the good which lies scattered in the many-sided medley of life. It is a noble thing to be a free thinker, it shows an enfranchisement from the dark ages of dogma and superstition. Think again. Are we free to choose out the good? Does not the choice imply a previous acquaintance and power of discrimination, and from whence is that to come? You reply, "Supposing an innate discrimination wanting, then there is the consensus of public opinion to fall back upon: *that* will tell one what to choose." What, then, will be the answer in the days when everyone is a free thinker? Where will be the public consensus?

Chacun à son goût will some day be the death of France. With all our light we want a guiding light, and here again we are not denied: there is an enormous choice of guiding lights, and we have to go back a step further and ask for a guide to take us to the right guiding light. So it would seem that there is nothing for it but '*chacun à son goût*' either directly or indirectly. "Liberty, Fraternity, Equality!" is the Frenchman's cry. It sounds a noble cry, but it is one which, constituted as man is, can never be fully answered. If there be not an aristocracy of Rank there will ever be an aristocracy of Talent and Moral Strength. There may come a time when the stronger will allow for the weaker, the nobler for the less noble. It is even now coming; but we have to look further for the time when the weaker and less noble will recognise and strive to profit by their superiors. The cry for *Fraternity* will then at least be answered.

We must allow of this fact—viz., that whatever it be which constitutes greatness, thoughtful men appreciate and reverence that greatness; and by the study of the actions, words, or thoughts of those they acknowledge to be great, their own thoughts are raised, and so, by an eternal law, their actions.

We seek, then, to know whether we are to follow any human master, and if so, whom.

The question is differently answered by theologians, moralists and nihilists, yet the full answer may still remain ungiven, or what

may be an answer to one may be impossible to another. This, at least, is true: It is not for the individual to make his choice or basis of action, solely on his own responsibility,—(it must ultimately, such is the paradox of life, come to this)—but, by submitting his thoughts to the thoughts of those he feels to be greater and so worshipping those who to him are heroes, he *must* be raised to a higher state of being, and may come to feel that *then* there is no choice to be made.

R. G. DURRANT.

[We shall be glad if any of our contributors feel inclined to follow Mr. Durrant's article with another on the same subject.—ED.]

AN UNREPORTED DEBATE.

[Sir,—Allow me to direct your attention to the fact that one of the most interesting debates of the Union held during the present session has not been reported in the pages of this Magazine. I enclose you an abstract of the speeches, which I trust you will insert in your next number.—REPORTER.]

The CHAIRMAN said that a most important problem was to be submitted that night to the consideration of the Union, and he hoped a great many new ideas would be elicited in the course of discussion, and a great deal of pleasure and instruction given and received. He was very happy to call upon the *Apostle of Sociololgy* to move the following resolution:—"That Man is a degenerated Frog."—The APOSTLE rose and said: I feel, in opening this debate, more or less like a mathematician writing a treatise on the sublime truth that two and two make four; or like a transcendental philosopher elaborately demonstrating his own existence to his own satisfaction. Surely the proposition I have undertaken to support stands in the some category with the rotation of the earth on its axis, or the evolution of species by Natural Selection, which in these days can scarcely be seriously doubted even by the oldest of ancient ladies, not to mention Mr. Spurgeon, General Booth, the Archbishop of Canterbury, or the Pope of Rome. My subject, logically considered, divides itself into two parts—first, that man is descended from the frog; and, secondly, thatthe process of descent has been one of degradation. Perhaps my audience would hardly thank me for using all the materials which offer themselves for the illustrations of my first division; and therefore, knowing the weakness of the most philosophic flesh, I shall content myself with a few brief quotations. The speaker then read copious

extracts from Huxley's Inaugural Address, Darwin's "Descent of Man," and Herbert Spencer's "Principles of Biology," and proceeded: The cumulative effect of innumerable sequential modifications and differentiations of structure and function has thus determined the descent of man from the amphibian ancestor. Every word I and the succeeding speakers utter to-night will stand in causal connection with some ripple that washed the back of the primæval frog, some ray of sunshine that dried his skin, or some croaking love-passage with his Batrachian bride—the ripple, the ray, the croak, all being necessary antecedents. I must now pass to the second half of my subject, which I have tried to illustrate diagrammatically. The speaker here pointed to the blackboard, on which was represented a pyramid, with the frog at the apex, and the various races of mankind radiating towards the base. This he explained at some length, and went on: The social side of a frog's nature is highly developed. There is no doubt that the assemblies held every evening on the margins of ponds and streams have for their object "intellectual intercourse and recreation," like the meetings of our Union, but are so far superior that there is no tabooing of momentous subjects, and no fifteen minutes limitation of speech. [Here the Chairman looked at the clock, and administered a gentle kick to the *Apostle*, but without effect.] Instead of dreaming dreams about Paradisaical ancestors of whom we could know nothing, even supposing there were anything to be known, let us copy an ancestor whom we can know very well, and who has the advantage of being indubitably alive. Let us——[the Chairman here sounded the gong, and the *Apostle of Sociology* resumed his seat with a sigh].

The Man of Character said: Mr. Chairman, Gentlemen, and Ladies,—I think I shall have no difficulty in showing that there is not a word of truth in the speech we have just heard. The *Apostle's* facts are most of them new to me, and I don't believe any of them. His arguments are simple rubbish, if they are to be called arguments at all. If Huxley, Darwin, and Spencer ever said anything so silly as what he has quoted, it simply shows that they didn't know what they were talking about. It is only necessary to appeal to common sense to be quite sure that man is *not* a degenerate frog. Why, when I was a lad I used to be always catching frogs, and I used to tie a string to their legs and stir them up with a jack-knife. If I hadn't been a superior being, even when I was a lad, I shouldn't have been in a position to bully a frog, and it is ridiculous to imagine that a degenerate species

should be bigger and stronger in every way than the original type. As to the fifteen minutes limitation of speech which the *Apostle* tells us is not enforced in the social assemblies of the frog, that institution is the strongest proof we could have, if proof were necessary, that man is indefinitely in advance of the little beast we are considering. Why, if we were frogs we should have the *Apostle* croaking to us all night! I have no objection to anyone's calling himself a degenerate frog, or even an antediluvian ass, if he particularly wants to, but I am perfectly sure that I and everybody else with any sense at all are nothing of the sort.

HYPATIA said: The opener of the debate has satisfactorily solved one half of our problem; the true solution of the other half is furnished by a comparison between the physiology of the nervous system in man and in the frog. When the whole of a frog's brain is removed, his spinal cord can still execute purposive reflex actions; for instance, if a piece of paper dipped in acetic acid be placed on his back he will energetically endeavour to pick it off. If his cerebellum be left intact he will swim when thrown into the water, jump when irritated, and try to regain his equilibrium when placed on a slanting surface. The advantage of this arrangement, long since extinct in man, is sufficiently obvious. As the ordinary business is carried on by the spinal cord and cerebellum, the hemispheres are relieved of their lower functions, and their whole area is left free for poetic imagination and abstract thought. A state of ideal perfection, unattainable by man—even by the *Man of Character*—is thus reached by the frog, who unites great contemplative power with habits of the most varied activity; but the former quality is more apparent, though perhaps not more highly developed, in his less mercurial relative the toad. The accounts of toads who have lived and thrived for centuries imbedded in wood or stone may indeed be fabulous, but it is impossible to doubt that they are founded on a true appreciation of the genius of this remarkable animal. I may conclude with a few lines roughly translated from Langeweile's beautiful "Soliloquy of a Toad in a Hole,"

> "I dwell content in this my secret home
> 'Neath the deep midnight of its marble dome,
> And while long ages pass, I meditate
> The mystic cycles of Amphibian fate.
> Here, like a silent prophet, will I stay,
> Secure of future bliss; nor seek the day
> Till from his throne usurping Man be hurled,
> And Frog and Toad again possess the world."

DEMOSTHENES said: The arguments urged by the last speaker may be all very well in the region of "poetic imagination,"

or perhaps of "abstract thought"; but they fail when brought to the bar of experience. Did she ever meet a frog equal in mental power to the average run of students in this College, or even to the German author whose sentiments she has just quoted? Perhaps she would answer me with a well-worn passage about "mute inglorious Miltons;" but I submit that though the adjectives may be justified, the substantive is gratuitous, and that until we discover that any frog has produced a work equal to "Paradise Lost," "King Lear," Lord Beaconsfield's speeches, or even Blackstone's Commentaries, it would be absurd to dream for a moment of abdicating our intellectual throne. But if the proposition be true—if every step that leads us further from the frog be a step of retrogression and not of advance—let us at once make a bonfire of our books and our pictures, raze to the ground our hospitals and churches, commit our scientific apparatus to the depths of the Reservoir, and blow up Mason College with dynamite!

The MÉDECIN MALGRÉ ELLE considered that there was good deal to be said on both sides of the question, and after referring to the high order of intelligence exhibited by the celebrated jumping frog, and to the noble moral qualities displayed by the typical martyr of science, continued: One point in which mankind has distinctly degenerated has struck me rather forcibly: a certain species of frog is, as everyone knows, green. Now, these frogs adapt their misfortune to a useful purpose, and by living in trees where they are indistinguishable from the foliage, they manage to delude unwary insects, and so earn a very respectable living. Similarly a very large species of man is green; but these have completely lost the power of making any uses of their peculiarity, and instead of deluding others, are constantly being taken in themselves. The superior strength of the genus *homo* urged by the *Man of Character* seems to me to be no argument; you might indeed seize the long-suffering Amœba by a pseudopodium, and lacerate it with a dissecting needle, but it would still be your primæval grandfather; and your degeneracy would scarcely need further proof.

1,001 GEMS said: "I have been a good deal struck by what two celebrated poets have written about the origin of the human race—I mean Mr. Swinburne and Dr. Watts. The first quotation we may not quite understand, but still it seems to throw a good deal of light on the subject.

> "Before the beginning of years
> There came to the making of Man
> Time, with a gift of tears—
> Grief, with a glass that ran."

The second is one with which we must all be familiar—"Man is but a rebel worm." The speaker then proceeded to bring forward evidence to show that man should be classed with Vermes, alluding to the fondness of young children for dirt and grubbing. This, she

said, was in accordance with the law of the repetition of the history of the race in the history of the individual, and concluded: I am not sure if I make myself clear, but what I want to bring out is this: if man is a worm, how can he be a frog? I don't see how you reconcile the two—and if he isn't a worm, I should like to know what he is?

The Bookworm wished to avoid profound metaphysical arguments, and to adapt himself as far as possible to the capacity of his audience. He would try to demonstrate the Batrachian ancestry of man by comparative anatomy. He proceeded to do this, and then said: The previous speaker has remarked that the history of the race is repeated in the history of the individual, but she forgets that when the race has retrograded the history is repeated backwards. Not in childhood, but when he has attained the fulness of his powers, and can jump and swim to perfection, does man most resemble the frog, who possesses these accomplishments from infancy. How superior is a tadpole to a baby!

Sense and Sensibility did not think the speakers on the other side had shown that man had descended from the frog; but if he had, she thought he had degenerated. She had often seen the lives of two or three frogs cruelly wasted in an experiment to prove something that everybody knew already; and she was quite sure that a frog would never be so unkind to man as men were to the poor little frogs.

Church and State considered that after mankind had been trying to civilise themselves for 6,000 years, it was very hard to be told that they were nothing but degenerated frogs. It was very unfair to students attending classes at the College, and especially to the Committee of the Union; and he could state on the best authority that such an opinion would have been strongly disapproved by the late Sir Josiah Mason, whose views on this subject he had taken some trouble to ascertain.

The Oxonian said that no words of his could do justice to a theme so lofty, but he would like to quote a few lines written by one of our greatest thinkers. He then recited some verses which summed up the situation in a masterly way, beginning—

"Can I view thee, panting, lying
On thy stomach, without sighing,
Can I, unmoved, see thee dying
On a log,
Expiring Frog?
Say, have fiends, in shape of boys,
With wild halloo and brutal noise,
Hunted thee from marshy joys
With a dog,
Expiring Frog?"

The Queen of Hearts rose in her usual charming manner, and said: I am sure the magic name of "swimming baths" will touch a responsive chord in the hearts of all of us. We have only

to remember how very nice swimming is, and how fond everyone is of it, to feel at once a connecting link with the frog. And we can also trace the degeneracy of man, because men have to learn to swim, while the smallest tadpole can swim quite naturally and so nicely.

HISTORICUS said the arguments of *Hypatia* and the *Bookworm* had struck him as very sophistical, and led him to doubt the facts brought forward by the speakers. He thought the spinal cord and the tarsal bones had nothing to do with intellect. Julius Cæsar and Napoleon I. had short legs, and Pope had a crooked spine, yet who could doubt that all three possessed far higher and nobler genius than the most phenomenal frog?

The CHAIRMAN now rose and said that the debate had been very instructive, and that many useful lessons might be drawn from it, teaching us how we might progress backward. He would now call upon the *Apostle* to reply.

The APOSTLE said: I am sure our thanks are due to the speakers on the negative side for proving so satisfactorily the utter weakness of their case. The autobiographical incident related by the *Man of Character* only shows that in early life he had not attained that equilibrium of egoism and altruism which marks the highest point of civilisation. If a cannibal were to behave to the *Man of Character* according to the traditions of his tribe, the cannibal would, by the same rule, be the superior being. As to the remarks of *Demosthenes*, if he does not understand the language of frogs, and therefore cannot judge of their oratorical powers, that is no proof that they would be conversely incapacitated to criticise his special pleading. I quite agree with *1,001 Gems* that the worm is a more or less remote ancestor of man, and indeed consider it probable that the frog himself is a degenerated amœba; but it is quite clear that neither fact in any way affects the present argument. *Church and State* evidently possesses a mind peculiarly amenable to the influence of authority. Of course, we all honour the name of Josiah Mason, but there is no evidence that he ever mixed in Batrachian society, or ever had any personal acquaintance with a frog. Surely I may say that the proposition under debate has been triumphantly established, since the imperfections of both its advocates and its opponents can only serve to make its truth apparent to every unprejudiced mind.

The CHAIRMAN, having put the resolution to the vote, stated that it was carried by a majority so large as to render counting unnecessary.

OUR CONTEMPORARIES.

We acknowledge with thanks the receipt of *The Marlburian* and *The Midland Institute Magazine.*

MISS EVANS.

We are sure that the announcement that the college is about to lose one of the most prominent of its lady-students, will meet with a general feeling of regret.

Miss Evans, although not one of the earliest students, has been in College long enough for us to recognise and appreciate, not only her high intellectual attainments, but also her grace of manner, her warm-heartedness, and kindly sympathy. We are glad that one so thoroughly in earnest, and so thoroughly in sympathy with work for its own sake, should have been one of the first followers of that educational movement which is eliciting and developing the intellectual life of the town.

Her pre-eminence in Zoology and Physiology, which gained for her the sessional prize in those subjects, is known to us all; but the pleasure of working side by side with her in the class-room and of sharing her generous enthusiasm for knowledge has been reserved for a very few. Those few will not readily forget the example she set them of cheerful perseverance.

We are now about to lose her, but we hope only for a time; and we are encouraged to believe that when she returns to make her home in Birmingham, she will still continue to take the same kindly interest in us in the future that she has in the past, and that the friends she leaves behind her will not be forgotten. In this hope we bid her farewell.

THE UNION.

Special Meeting held on March 9th.—Mr. CULLIS in the chair.

Mr. GREATHEED proposed the following amendment to Rule IX:

"To add, after the words, 'balloting papers,' the words: 'At the first ordinary meeting in the spring and summer terms, in the event of any two members of the Committee desiring to retire, or if no two members shall so desire, then upon the compulsory retirement of the two members whose attendance at the Committee meetings during the previous terms shall have been the fewest, the Union shall proceed to elect two new members whose names must have been sent to the Secretaries forty-eight hours before such meeting. In cases of equality of attendance retirement shall be decided by ballot. Retiring members shall be eligible for re-election.'"

Mr. GREATHEED pointed out that the new members of this Union were not represented on the committee, and that by having an election for two members at the beginning of the Spring and Summer terms, opportunities would be afforded to new members for placing on the committee some one who would represent them.—Mr. BLAKE seconded the proposed alteration, and said he believed that there was some dissatisfaction in the Union, which would be remedied by adopting the new rule.—Mr. CARTER opposed the alteration, and he was supported by Mr. ELIOT, who informed the

Union that the committee had passed a resolution to the effect that they disapproved of the new alteration. He said that, in his opinion, the new members could not expect to be represented on the committee as soon as they joined the Union, and that if the resolution were passed the committee would be upset twice in the year. He maintained that the committee was a representative one, and strongly urged the Union not to adopt the alteration.—Miss STURGE, Mr. BARRATT, Mr. DURRANT, Miss G. DALE, Mr. SMITHSON, and Mr. GREENE also spoke against the resolution.—Miss ELLERMAN spoke in favour of it.—After the discussion had lasted for one hour and five minutes the chairman summed up at some length, and on the resolution being put to the Union it was lost.

Mr. Penn was elected a member of the Union.

Mr. BLAKE then opened the following debate, the subject being "That the difference between Reason and Intellect is one of degree." Mr. Blake first drew attention to the argument from comparative anatomy, pointing out that from the Pisces to Man there was a perfect gradation, no new mass of brain being suddenly *superadded* to correspond to the alleged sudden appearance of reason. He next alluded to the argument from evolution; not thinking it necessary to offer any justification of that theory, he remarked upon its general acceptance, and the rejection of its deductions which did not coincide with previous convictions. He then indicated the close connection between his proposition and this theory. He then took a special case, and endeavoured to trace the evolution of reason from instinct. He showed that between certain actions of a dog, fulfilling the definition of instinct, proposed by the negative, and others fulfilling their definition of reason, there were a number of actions differing only in degree, completely bridging the gap. Finally, he asked to be shown the points at which, phylogenetically and entogenetically, reason originated *de novo*.—Miss STURGE said that even on the surface there existed very important differences between that faculty which they had agreed to call instinct, and that reasoning power which she granted was possessed by both man and animals. The actions which are the results of *reason* are far from being similarly performed under the same appropriate circumstances by all the individuals of the same species; and the reasoning faculty only acts upon definite and often laboriously acquired knowledge. She pointed out the mistake of believing that the nervous system accounted for and gave rise to everything which is in connection therewith, and quoted Bastian as saying that "consciousness is generally" *superadded* in the higher forms of animal life as a newly-begotten accompaniment of nerve action. Therefore it was at least possible that other faculties might be also "added," similarly interwoven with the nervous system. In reply to the apparently satisfactory theory of the steady development of nervous power through the influence of "heredity," she

read the following words of Darwin which emphatically state that the instinct of animals cannot be accounted for in that way :—"It would be a serious error to suppose that the greater number of instincts have been acquired by habit in one generation and thence transmitted by inheritance to succeeding generations. It can be clearly shown that the most wonderful instincts with which we are acquainted—namely, those of the hive-bee and of many ants, could not possibly have been acquired by habit."—*Origin of Species.* Miss Sturge then illustrated her theory by the case of the bee and wild duck. In summing up, she maintained that many actions of animals could not be accounted for, either as the result of reason in the present or in the past, and that as the theory of nervous development through the influence of heredity was untenable, there was therefore no firm ground for declaring that the difference between instinct and reason was one of *degree* only, but that even this scanty evidence which she had been able to bring forward in the time went to show that the difference was of one *kind.*—Mr. COOPER supported Mr. Blake, basing his arguments on the theories of evolution and heredity.—Mr. TUNSTALL, Miss NADEN, Mr. CARTER, Mr. DURRANT, and Mr. ELIOT took part in the debate which followed.—Mr. BLAKE, in replying, said that as to the argument that Darwin did not support it, he might say that Darwin was always extremely cautious in committing himself to an opinion in such matters. To Mr. Durrant he replied that he had purposely avoided the introduction of metaphysics in his argument. To Mr. Carter he pointed out that the example alleged of the sudden appearance of reason pointed rather to its gradual acquisition.—The motion was then put to the meeting, and was carried by a majority of 15 to 7 in the affirmative.

March 16th.—SHAKESPEARIAN READING.—The programme of the Union for last session ended with a reading of the "Midsummer Night's Dream." There was a large attendance of Professors, visitors, and members; the meeting was held in the Examination Hall and so we were able to treat the audience to a performance on the organ during the interval. Some of the students showed considerable power; the reading of Miss ELLERMAN, and of Messrs. GREATHEED and JENKYN-BROWN was specially good. Perhaps the principal fault of the reading, as a whole, was the unevenness of the readers, some of them rendering their parts in a very dramatic manner—though these were in the minority—and others simply reading. The sub-committee that arranged the reading had special difficulties to contend with, many of the students who had accepted parts early in the rehearsals, throwing them up as the evening of the performance approached. This fact may account for the very slight acquaintance which some of the readers seemed to have with their parts. The glee sung by the fairies was a very pleasant surprise, and was warmly applauded.

COLLEGE WORK.

PHYSIOLOGICAL DEPARTMENT.

The practical Summer course last year met for one hour on five days a week, but a considerable amount of time was unavoidably lost at the beginning and end of each hour, so it is proposed in the coming term to hold the class on Mondays, Wednesdays, and Fridays for an hour and a half each day.

Again, the class has so enlarged that it will be necessary to work it in two sections, one from 9-30 till 11, and the other from 11 till 12-30.

Perhaps the change of time will make it more convenient for many students who were unable to join this class under the previous regulations, and tempt them to add their names to the list. Each student will prepare for himself a set of microscopical specimens of all the tissues and organs of the body. He will receive full instruction in the working of a microscope, and the preparation of specimens.

He will himself test for the most important constituents of blood, bile, urine, milk, &c., and perform experiments on artificial digestion, the coagulation of the blood, &c. All apparatus, including the use of a miscroscope, is provided.

CHARLES GREENE.

NOTICES.

It is proposed to form a Bicycle Club in connection with the College. Students willing to join are requested to communicate with the Editor.

The Natural History and Microscopic Society, which meets beneath our roof, has taken a new departure in the direction of a Sociological Section for the special study of Mr. Herbert Spencer's works. The chairman of the section is Mr. W. R. Hughes, and the first meeting is fixed for Thursday, May the 3rd, when the first half of the essay on Education will be discussed. Also a microscopic exhibition will illustrate the cellular basis of animal and vegetal life. An excursion to Nuneaton and George Eliot's country is in prospect. Further particulars can be had from the Secretary, Mr. Alfred Hayes, Prospect Road, Moseley. Mr. Spencer expresses a cordial sympathy with the movement, and has made valuable suggestions in a letter to be read at the meeting.

Professor John M. D. Meiklejohn, M.A., will deliver a course of six lectures on "The Practice and Methods of Education," during the months of May and June, 1883. The first lecture will be given on Monday, the 21st of May, at 7.30 p.m. No fee will be charged for these lectures. Tickets to admit to the course of six lectures may be obtained from the Secretary, Mr. Geo. H. Morley. There is a great demand for tickets, so students will do well to apply for them as early as possible.

THE READING-ROOM, GIRTON.

Members of the Reading-room, holding Liberal opinions, were for some time disturbed and perplexed by the unaccountable presence on the table of a publication entitled *The Gladstone A B C.* The only solution that could be hazarded was that "it got put." Certain public-spirited students accordingly put up the following signed notice:—

"Whereas an anonymous, unauthorised, and obnoxious illustrated pamphlet has been found on the table of the Reading-room, we hereby give notice that unless the aforesaid obnoxious, unauthorised, and anonymous illustrated pamphlet be removed before nightfall, we intend to request the Secretary to call a meeting to consider the question of consigning the aforesaid unauthorised, anonymous, obnoxious, illustrated pamphlet to the flames of the kitchen fire."

The pamphlet showing no signs of disappearing, but on the contrary, assuming a still more conspicuous position. A meeting was held on Thursday, March 8th. Miss Gadsden proposed, "That any publication not bearing the stamp of the Reading room can be removed at the end of a week at the discretion of the Secretary, or by the vote of the majority of the members;" secondly, "Such publications having been so removed, if not claimed by the owner or by the minority, can be disposed of in accordance with the vote of the majority of the members."—Miss Scott, in seconding the first resolution, remarked that whatever rights were granted or denied to societies, *one* was never impugned—viz., that of guarding their own morals; and this was, therefore, only asserting a right which they already possessed, and had exercised, in excluding from the Reading-room certain other papers.

Both these resolutions having been passed by large majorities, Miss Llewelyn Davies moved, and Miss Gadsden seconded, "That the aforesaid publication is (*a*) a pamphlet, (*b*) illustrated, (*c*) anonymous, (*d*) unauthorised, (*e*) obnoxious." Of these, (*a*), (*b*), (*c*), (*d*) were passed unanimously, and (*e*) was carried by a large majority amid great applause. Miss L. Davies then moved the fourth resolution: "That the aforesaid publication being an 'obnoxious,' 'unauthorised,' and 'anonymous' illustrated pamphlet, be *therefore* offered to the minority to be removed instantaneously; and if not accepted by them to be consigned to the flames of the kitchen fire." This being carried, the pamphlet was escorted out by its eight admirers, in spite of the ingenious protest of their leader that property over which partners disagree goes into Chancery; and the meeting separated after a hearty round of applause for Mr. Gladstone.

The proceedings were throughout enlivened by the small, but energetic minority, who, under the leadership of a well-known supporter of the debates, made their presence more apparent than could be explained by their numerical strength. GIRTON REVIEW.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Sir,—May I ask your reporter's permission to correct a slight error in his digest of my paper in your last issue? He says that I ascribed the fall of Carthage to its *insignificance*. My intention was to illustrate by the relation of what a Carthagenian did, its immense *significance* in old-world history. Your reports of the Union Meetings are generally models of accurate and judicious condensing.

Yours, &c., CHAS. TUNSTALL.

To the Editor of the *Mason College Magazine.*

Sir,—The letter in your March number, from Matilda L——, reminds me that I took a few friends over the College a short time ago, who, besides giving a good word for each department, took great interest in the Union, of which they had heard such glowing accounts. Amongst other things, I showed them our suggestion book, which has lately been so disgracefully used; one gentleman immediately remarked that he thought no infants were allowed, "for," said he, "none but infants and idiots would so abuse a book left entirely to their honour." He went on to compare this with other Colleges, and said that such things could never occur among students who had a spark of pride either for their College or their Union. Let us hope, after hearing what outsiders say, the student will take more pride in the Union, and prevent such foolish exhibitions as we have lately seen in the suggestion book.

Yours, &c., A MEMBER.

To the Editor of the *Mason College Magazine.*

Sir,—I regret to see so many ladies in the Union who never take part in any of the debates. This is probably due to an unfortunate choice of subjects. Ladies can speak, for I heard the other day of a young lady who, at a debating society in the vicinity of Birmingham, spoke no less than forty-four times. The subject which acted as so powerful an incentive to eloquence was "The Follies of Fashion." May I suggest to those to whose lot it falls to choose the subjects for our Union debates, that they should endeavour to make the programme of such a character that more of the ladies might feel disposed to take part in the debates?

Yours, &c., A JUVENILE MEMBER.

To the Editor of the *Mason College Magazine.*

Sir,—A letter in your last issue raises the all-important question as to the character of our Magazine, and suggests that the matter should be lighter and more vivacious in tone.

No doubt really clever and humorous articles will be welcomed by all readers, and by all means let us have these; but with regard to "personal experiences," I am inclined to think that such experiences, although of interest to the writer, and perhaps also to the writer's friends, will not be so to the general reader, and that, therefore, unless the style of the communication be exceptionally "racy" and good, such literature will not tend to increase the value of our Magazine.

The difficulty which besets us seems to lie in the facts that, as students, most of us do not possess that real "culture" which enables, for instance, the Oxford and Cambridge undergraduates to write valuable and, at the same time, bright and readable articles for their reviews. But surely we should aim at this standard; and although possibly first efforts may prove to be a little too technical and even unexciting to those of us who may not happen to know anything of the subject in hand, we should nevertheless be ready to take an interest in such attempts, as the result of the work of fellow-students, and as indicative of the line in which their thoughts and interests run.

After all, the Magazine is chiefly valuable as a record; and if we regard it in this light, as a record of *literary* and other efforts, of successes, of the meetings of the Union and other clubs and societies, and, of general College news, we shall see that it does attempt to "represent the student life."

Yours, &c.,

M. D. STURGE.

COLLEGE INTELLIGENCE.

ENGINEERING.

Second Year.

LECTURE CLASS.

Houseman, R. H.	Dixon, C. W.
Myers, L.	Walker, T. S.
Marten, H. B.	Hickman, E.
Thompson, S.	Hart, A. E.

DRAWING CLASS.

Myers, L.	Dixon, C. W.
Thompson, S.	Simpson, E. H.
Balfour, J. L.	Walker, T. S.
Marten, H. B.	Houseman, R. H.

First Year.

LECTURE CLASS.

Manton, A. W.	Hobley, C. W.
Cleaver, H. L.	Sturge, W. H.
Barrow, L.	

DRAWING CLASS.

Manton, A. W. }	Barrow, L.
Gordon, W. }	Hickman, E.
Cleaver, H. L.	Hill, F. F.
Pilsbury, W. C.	Demuth, L. H.
Hobley, C. W.	

INSTRUMENT CLASS.

Manton, A.	Pilsbury, W. C.
Cleaver, H. L.	Hobley, C. W.
Barrow, L.	Gordon, W.

PURE MATHEMATICS.

LOWER JUNIOR CLASS.

First Division.

Barclay, J.
Chattaway, F. D.
Manton, A. W.

JUNIOR CLASS.

No First Division.

SENIOR CLASS.

No First Division.

APPLIED MATHEMATICS.

First Division.

Deakin, A. W.

HIGHER JUNIOR PHYSICS.

CLASS I.

Houseman, R. H.
Sadler, E. A.

LOWER JUNIOR PHYSICS.

CLASS I.

Sunderland, O. }
Chattaway, F. W. }
Lloyd, E.
Clarke, B.

CHEMISTRY.

General Course.

CLASS I.

Cooper, A. J.
Adams, A.
Sadler, E. A.
Gardner, E. W. R.

PHYSIOLOGY.

CLASS I.

Melsom, G. H.
Blake, J. E. H.
Jordan, W. R.
Naden, C.
Featherstone, W. B.
Oldacre, C. E.
Fowler, F. W.
Downing, W.
Nott, A. H.
Hill, H. W.
Orton, ——

The Zoology Class List is not yet published.

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THE Mason College Magazine

EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

MAY, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

"JOURNAL" WORKS, TYP.

MAY, 1883.

Wednesday, 16.—
Thursday, 17.—
Friday, 18.—Union Meeting. Papers: "Teaching of Geography," by G. Dale.
["Vibrations," by H. G. Durrant.
Saturday, 19.—Notice for M.A., Branch I., and 1st. Lit. Exams.

Monday, 21.—
Tuesday, 22.—
Wednesday, 23.—Union Committee Meeting, 5 o'clock.
Thursday, 24.—Queen Victoria born, 1819.
Friday, 25.—
Saturday, 26.—Notice for M.A., Branch II.

Monday, 28.—
Tuesday, 29.—
Wednesday, 30.—
Thursday, 31.—

JUNE.

Friday, 1.—Union Meeting. Impromptu Debate.
Saturday, 2.—Notice for M.A., Branch III.

Monday, 4.—M.A. Exam., Branch I. Inter 1st. Exam.
Tuesday, 5.—*Id.* ——— *Id.* ———
Wednesday, 6.—*Id.* ——— *Id.* ———
Thursday, 7.—*Id.* ——— *Id.* ———
Friday, 8.—
Saturday, 9.—Charles Dickens died, 1870.

Monday, 11.—M.A. Exam., Branch II.
Tuesday, 12.—*Id.* ———
Wednesday, 13.—*Id.* ———
Thursday, 14.—*Id.* ———
Friday, 15.—Union Meeting. Papers: "Art of Painting," E. Bulwer.
["Diatoms and Desmids," A. E. Bullington.

NOTICE.

The Magazine will be published every Month, except August and September.

It will be published at Cornish Brothers, 37, New Street, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 4s. 6d. 5s. post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 5, Vol. I. MAY, 1883. Price 6d.

OVERTAKING THE RAYS OF LIGHT.

Some thirty or forty years ago a little pamphlet was published anonymously, entitled "The Stars and the Earth; or Thoughts upon Space, Time, and Eternity," in which the author sought to prove certain metaphysical speculations on the nature of time and space by consideration of the consequences of the finite time taken by light to travel through space. He failed, as all must fail who attempt to prove metaphysical propositions on purely physical grounds; but the physical parts of his pamphlet have an independent interest, as introducing to us the idea of magnifying or reducing the scale of time in an easily conceivable way. I propose to give some account of his "microscope for time," and to extend his method to show how we can conceive of the analogue of an inverted image—that is, of events moving backwards.

Since light takes time to travel through space, having a velocity of about 186,000 miles per second, it follows that the pictures of objects on our retina are pictures of the objects as they were at a greater or less interval before. With terrestrial distances this interval is so short as to be absolutely unimportant to us, except in such experiments as those of Fizeau and Foucault, where the interval taken by light to trave lover a short distance was actually detected, and used to measure its speed.

But when we come to planetary and stellar distances the interval is very appreciable. Thus we see the moon as it was a second and a quarter before. Jupiter's satellites are eclipsed nearly an hour before we notice their disappearance, and the light from Neptune is four hours late. Beyond Neptune is the enormous space between our system and the fixed stars, tenanted, as far as we know, only by comets, which may either belong to our sun, or be wandering on till some new system presents sufficient attraction to warrant a visit. The light from the nearest fixed star, α Centauri, takes three and a half years to cross this space.

Vega and Sirius we see as they were twenty years ago, the Pole star as it was half a century ago, and so on, until the distance of some of the faintest telescopic stars may be so great that we are only now receiving the light which left them thousands of years ago.

Now, while we are receiving light from the stars our system is also sending out light in its turn, which of course takes equally long times to travel over these distances. Let us imagine an observer with a telescope of magnifying power, which he can adjust at will to any extent, and endowed with the power of stationing himself where he will in space; further suppose him always to make his telescope magnify so much that when he looks towards the Earth he can see what goes on on the surface as easily as he would see what goes on in Edmund Street if he stationed himself near the Mermaid. If he were now at Neptune he would see the Earth as it was four hours ago. At greater distances among the comets he would see the Earth as it was at longer times past, until at α Centauri he would only yet be at the end of 1879. At Vega or Sirius he might still be witnessing episodes of the American war. At the Pole star he would be back in the times of the first Reform Bill, and at Capella he might follow up the events which led to the Battle of Waterloo, which will only happen next year but one. He has only to go to still remoter stars to see events far back in history, while on the borders of our stellar system he might still see the Earth as Professor Lapworth is reconstructing it for us, from a very different record.

There is, then, travelling out into space in ever-widening spheres a continuous panorama of history, and we have only to imagine ourselves endowed with the power of sufficiently rapid movement and with sufficiently improved eyesight to conceive of the possibilty of taking up this panorama where we like, and living over the past again as passive spectators from any point we choose. A well-known astronomer once declared it to be his ideal of happiness after death to wander from star to star and learn what was beyond the power of his instrument to reveal to him upon earth. His pleasure might, I imagine, be somewhat alloyed if he came across the record of his own life, working its way into some obscure corner of space as rays of light.

What we have been considering is only a special case of the general proposition that every part of the universe bears upon it the impress of all that has happened in every other part in all past

ages. Were we only sufficiently good mathematicans, and had we only a perfect knowledge of one portion of space, at any moment we might perhaps reconstruct the past as accurately as our imaginary observer among the stars. But such a reconstruction would be after all but a description of the past, such as the historian and the geologist are striving to complete, whereas the record out in space is at once ready for interpretation by our eyes, and would appear to us the present as much as what is going on around us now.

So far we have supposed the observer to station himself at each star. But now let us suppose him to be travelling to or from the Earth at speeds comparable with that of light. Then we shall see that time would appear to be altered in scale, and even to be reversed, just as optical images of objects may be either larger or smaller than the objects themselves, and may be either the right way up or reversed.

If for instance, he had started from Sirius twenty years ago and had moved towards the Earth with the velocity of light, he would just be arriving here. As he left Sirius he would just have received the light which left the Earth twenty years before, or forty years ago, and as he approaches the Earth he witnesses the events of 1883. So that into twenty years he has crowded up the events of forty years, and everything will appear to go at twice the speed. Let him move still more rapidly and the hurry would be still greater. Were he only to occupy a few days on the journey, life on earth would appear to gallop. Children would grow almost visibly, and as soon as they had stopped growing they would rush on to middle age; trains would move at lightning speed—indeed, so fast that he would not see them on their passage, but only notice their disappearance from one station and appearance at the next. But there is another consequence of this motion towards the earth to be noted. Just as a railway whistle appears to rise in pitch if we are travelling towards it in a train, so would all colours appear to rise in pitch, as it were, to our observer. Our eyes at present are only constituted to make use of vibrations of a certain range of frequency. If by his motion the observer were to quicken up his speed till he received twice as many vibrations in the same time, the present colours would all move quite out of the range of his vision beyond the violet, and would be replaced by those long waves beyond the red which we can now only perceive by their heating effects. The earth itself sends out such rays, and it would most likely appear to be a red-hot globe, while boiling water would be of dazzling brightness.

But, perhaps the observer would find life going too fast for him. He would only have to start on his return journey to have a little breathing time, and make life go as slowly as he pleased.

Suppose him to travel from here to Sirius in, say, forty years, facing the Earth all the time. He will arrive in 1923, and be

then just overtaken by the faster moving light, leaving twenty years after him in 1903. So that the record of twenty years' events on Earth will be lengthened out into forty. Our life would appear to go at a snail's pace. Our run would be as slow as a walk, our walk a crawl, and our trains would be no better than trams. Children of 20 or 30 would still be at school. At 40 the young people would be entering college or business. At 80 or 100 they would be middle-aged, while rivals to old Parr would be seen on every hand. Here, then, we have a time microscope: we need only increase the pace outwards to increase the magnifying power, till each second is lengthened into a day or year. The more nearly the speed of light is approached the greater is the magnification, until equality is reached, when the observer will see nothing, as no fresh waves will enter his eyes. But now suppose him to face about and get up still greater speed. He will now overtake the waves of light, and he will see once more. But the waves will enter his eyes reversed in order. He will overtake first those which left the earth last. Thus, if he moves with twice the velocity of light towards Sirius, he will arrive in ten years, and there overtake the waves which left the earth ten years ago. So that on his journey he will see the events of the last ten years, but all in reverse order. The earth will appear to go the wrong way round the sun, and to rotate the wrong way on its axis. Rivers will steadily flow up towards their sources—a far greater achievement than meandering "level with their fount;" showers of rain will start from the earth and rise towards the clouds. If he watches the inhabitants and continues his observation long enough he will see old men dying into life, walking backwards all their days, growing younger and younger, until at last they are born out of the world as flourishing babies, at the mature age of three score years and ten.

Let us imagine the observer able to interpret our speech, say, from the motion of the lips. He would soon get accustomed to the inverted order of the sentences, especially if he had studied German in his terrestrial career. He would find mankind talking in general, and in the main correctly, as to what was going to happen, while their references to the past would be hazy, incomplete, and usually quite wrong. He would learn that their memory was only for future events, that they remembered something till it occurred, and that then it went clean out of their minds. It would be interesting to know his opinions on the freewill controversy in studying a race of beings where actions preceded the determination of the will. Would such a race appear to him more or less wise than a forward living race? We call him a man wise who can foresee what is going to happen, and act with the future in view. Here he would see beings who would appear to be guided almost entirely by the future, and who would be able to foresee and foretell infinitely better than they could recall the past.

Take an example. In our present mode of life, a man is hanged because he has put a fellow-creature out of the world. The same series of events would appear to our observer, thus: a man would be pulled up into life by a rope, imprisoned for a few weeks till he was more like his fellow-creatures, tried, and set at liberty. He would then proceed to restore a fellow-creature to life by drawing knives or bullets out of him, and thereafter, all would go on happily. From which point of view is the transaction the best—that where two men go out of the world, or that where two men enter it?

Were our observer of a scientific turn of mind he might be interested in observing that the mechanics of such a system would coincide with ours while he travelled uniformly. The principle of the conservation of energy would equally apply, and I think that the laws of thermo-dynamics would be true. But there would be one great change. Instead of, as now, a continual tendency on the part of energy to a uniform and useless level—the so-called dissipation of energy—there would be a continual tendency for it to gather at various levels, and heat would continually be transforming itself into other forms of energy. Stones would suddenly find the ground beneath them grow to hot too hold them, and they would be thrust up into the air to fall again into schoolboys' hands. The rivers would run up hill, not through defiance of gravitation, but because their banks and the stones in their course would yield them up the energy required.

Here, then, we have what we may fairly compare to the inverted picture in a camera. It would require a Jules Verne to describe life as it would be in such a system. Ordinary mortals could only bring themselves into a fitting state of mind to realise it by some such process as standing on their heads and contemplating the reflection of the rest of the world in a looking-glass.

J. H. POYNTING.

ON HERO-WORSHIP.

There is something which should raise us in the mere contemplation of the lives of great men, of those who in the best sense are called heroes, the masters of their race. We feel that they were human beings, born to temptations and infirmities as we are, yet trampling under foot all but their highest selves, and setting an example which we too, being human, feel that we can follow, however humbly and imperfectly. And it is this aspect of "hero-worship" which it seems to me is not sufficiently insisted on.

When Savanarola was burnt, the knell of Florence as a free city was rung; when Socrates was condemned to drain the fatal cup, no Demosthenes could have saved Athens, for her citizens had pronounced their own unfitness to rule.

Happily, we have before us brighter examples—nations worthy of the noble leaders they found. If the Dutch secured the

independence of their republic against the whole might of Spain, it was because they had as a leader the very incarnation of patriotism, William of Orange; but it was also because they were themselves ready to sacrifice their all in the cause of freedom, to leave their country even, and found a new republic upon some foreign shore, rather than be the bondslaves of Spain.

Worthy to take his stand beside William the Silent in the ranks of pure patriotism, let us next look at Washington and the people he led. He retired from public life in the zenith of his power and fame, confident that his countrymen could govern themselves, could add stone after stone to the edifice of that glorious republic of which he had laid the corner-stone.

No, Carlyle was not right in the bitter saying, that his fellow-creatures were "mostly fools." He was admirable in his enthusiasm for heroes, in his recognition of their priceless services to their race; but if men were "mostly fools," then heroes would live and die in vain.

An army of sheep commanded by a lion might possibly gain the proverbial victory; but the victory gained and the lion dead, where would the sheep be, and what good would their hero have been to them?

There is something deeply touching in the contemplation of vast numbers of human beings striving for centuries to follow in path of leaders who themselves saw "but as through a glass, darkly."

It is not so much that humanity has been ungrateful to its great men, and unmindful of their teachings, as that the leaders themselves could not see beyond the highest wisdom of their own times, and have thus, at last, come to fetter the intellects which bow to their influence.

But we may be sure that if they could still survey the struggles of their fellow-creatures their voices would be raised to urge us to the pursuit of truth and right as we best understand them now.

B.

ANOTHER POINT OF VIEW.

"Ten o'clock! Must hurry up to be in time for Chemical; come along, old man. Hallo! what's that on the notice-board? Matric. list out? Well, if that wretched Smith's not plucked again! I say, it's seven minutes past; we shall be locked out." Hampton and I race up the staircase three steps at a time and turn in, just as the Professor comes to lock the door. Only just in time, we scuffle into our places, and two minutes afterwards the door opens from outside, and three other fellows stroll in; the Professor looks up astonished, and there is a general laugh.

I open my note-book and find the last entry is an elaborate sketch of an explosion, including the attitudes of the lady students. Hampton looks over, grins, and grabs the book, which he hands

to the bench behind; the gurgling which ensues is promptly suppressed by a severe look from behind the lecture table.

Meanwhile, I fish in all my pockets for my pencil, and finally recollect that it is lying on my study table. After a little frantic pantomime I obtain one, and reach over for my note-book, which has received various embellishments in transit. By this time we have got well into the lecture, and Hampton has been taking notes vigorously for some time. I look over and copy down some disjointed symbols from his book, when, his attention being distracted, he misses a few words, and gets out of the running. "What is the effect of 'eating microcosmic salt?" he mutters. I suggest "indigestion," and by a species of reflex action he writes it down, and gets once more into the swing.

My own notes are interrupted by watching a man repairing the roof of the Institute across the way, and I begin to speculate what his momentum would be if he repaired to the ground in $1\frac{1}{2}$ second. It is always well to take opportunities of applying scientific knowledge, my father says, so I feel a virtuous consciousness of time well spent. My thoughts are recalled from this momentous question by observing that the Professor is going to burn a diamond to convert it into CO_2; it seems to me it would pay much better to reverse the operation, and make it a case of great reduction on taking a quantity (of CO_2).

However, what he does do is to ignite the diamond in the oxyhydrogen flame, and put it into a jar of O, where it is expected to glow, but doesn't; the wire melts, and the whole comes to grief. The Professor burns his fingers and tries again; the front rows sympathise, the back rows scoff. On testing for CO_2 there is a precipitate conspicuous by its absence. Science, not to be defeated, gathers up her forces, and a third trial overcomes the obstinacy of the diamond, and a magnificent precipitate is greeted with cheers by the class.

Time is now up, and several men who have been diligently studying a branch of science not chemistry are immensely sold to find themselves marked absent in the register.

We hurry out of the theatre, after a glance at the specimens, and off to Zoology. Being ready a few minutes before the Professor, I improve the shining hour by getting down one of the fifteen diagrams displayed before us. I have just got as far as a life-like sketch of the lecturer pointing it out with a scaffolding pole, when I find that he has already commenced operations by asking a question which he is evidently expecting me to answer. I look helpless, and invite him to repeat it; the next man suggests an answer to me, and I commence dubiously—"The portal vein opens into the lungs ——"

Mark Twain has rather a fine passage somewhere, beginning "When the musing spider steps on to a red-hot shovel ——" Something of the same sort happened then.

When I have recovered a little, I go on with my diagram, and decide to begin to take notes when he comes to it; curiously enough, it is the only one he does not refer to.

The only part of that lecture that I recollect is the fact that "food in the alimentary canal is still outside the body;" it strikes me that such a statement would have appeared startling to some of the earlier observers—Jonah for example. My thoughts are still hovering in a speculative manner about the last-named gentleman, when a man in front of me pokes six inches of clay-pipe stem down the next fellow's collar; the victim wriggles and knocks over an inkstand, there is a scrimmage, and the Professor stops dead. We all look innocent, and he proceeds peacefully.

At last lecture is over, and having an hour to spare, I turn in to the laboratory, to go on with a lobster that I have got in halves; a man across the room is tackling several square yards of skate, which is, to speak mildly, emitting a malodorous effluvium. I attempt to disinter my lobster from a spirituous grave, but it is so mingled with the remains of a dozen others, that I can't sort it out, and give it up in disgust. Feeling pretty secure from interruption by any higher power, I stroll across to watch the carving of the finny monster, and begin to discuss the probable circumstances that flattened him out in the process of evolution; my theory is that it was due solely to the pressure of the superincumbent weight of water. Hampton comes and joins in—he has not a truly scientific mind—and he says that the animal being a skate was obliged to have a sharp edge, and then ran to width in order to use up the material.

Not to continue so fruitless a discussion, I propose to make some sections of skate in the machine. Hampton says a section of skate is a figure of eight; and when we find that we cannot make our sections properly without ice, he says it only bears out his view.

It is by this time nearly one o'clock, and, having succeeded in damaging the apparatus, we desist from our labours, for lunch. It pours with rain, and we only get as far as "The Garden," where we work steadily through the bill of fare. This is not the first Garden, I suppose, where man has eaten of the fruit of the tree, both good and evil. Hampton says my quotation is a little mixed, but wonders, for his part, what sort of a tree eggs and milk grow on. His ignorance of botany is shocking, and I inform him that egg-plants and cocoa-nuts are by no means uncommon.

He says, he never heard a hen called an egg-plant before, and that I haven't yet accounted for the milk out of the cocoa-nut.

It is trying to the British powers of digestion to grind at Mathematics directly after lunch, consequently it is not to be wondered at if our attention wanders somewhat. I look out of the window—no easy matter, as the glass is becoming more opaque every day—and moralise on the refining influences of college life. When

I was young, and went to school, we learnt arithmetic; we tried to get right answers to our sums, and the master showed us our mistakes. Now we study mathematics, we attempt to obtain correct solutions to our calculations; the Professor indicates our errors, and if, by chance, we talk of a "dodge," we correct ourselves, and refer to an "artifice." I get rather sleepy, and when I try to take notes on parallel forces, the words run into a doggerel rhyme:—

"Whatever their direction,
Whatever it may be,
We always shall arrive
At the same point, G."

Hampton suddenly turns to me, with a serious face, and asks, "What inn does a Mathematician always put up at?" I gaze blankly at him, and give it up. "The sine of the angle of cos." He returns, and goes on diligently with his calculations. I look over to see where he has got to, and find his triangles neatly finished off with arms and legs, and his couples waltzing all over the paper. It is too late to begin any work now, so Hampton and I interchange confidences of a serious character, until we are requested to "Give in your papers, please."

The rest of the day is spent in the Chemical Laboratory. Owing to the temporary absence of the authorities, there is a wash-bottle fight going on when we enter. Wash-bottle fights are very wrong things; they interfere with steady work, they impair the discipline of the laboratory, often one's shirt collar gets very wet. In view of these solemn considerations, we take no part until an attack from the rear compels us to retaliate in self-defence, our scruples then vanish as if by magic, and we are soon in the thick of the fun. Before we have time to do more than deluge a row of benches and knock over a little apparatus, the untimely entrance of the higher powers puts a stop to our invigorating occupation, just as Smith blows the bottom out of his flask, and retires dripping. We now set to work seriously. The chief use of practical chemistry is, as everybody knows, to cultivate the cardinal virtues, pre-eminently Unselfishness, Faith, and Patience. The first of these is carried to such a pitch that any odious distinction between *meum* and *tuum* is quite forgotten. It is touching to a new-comer to see how a man who has used up his silver-nitrate, or his platinum foil, or broken his last watch-glass, will find a supply in the next bench, knowing well that as he does to others so others will do to him. The lady students, too, though they are a little longer in acquiring this beautiful virtue, soon learn how dependent all members of society are on one another.

As for Faith, Hampton says that if Mark Twain had only spent a few weeks in the Chemical Laboratory, and watched some of us making progress in this virtue, he would never have written his essay on "Decay in the Art of Lying," for the way we learn to appear to believe that mud-colour is salmon pink, that purple, bright red,

and white are all unmistakably brown, and that the transparency of a solution is sufficient proof of the presence of a copious precipitate, would convert the most bigoted believer in the existence of the human conscience.

Patience, too, has scope for a good deal of perfect work, especially in the Quantitative Department. You set a solution to filter, and visit it at intervals of several hours for a week or two; presently, by the aid of a pocket magnifier and a scientific imagination, you discover that a little of your solution has gone through; you do not relax your attention for a term or so, and when nearly half has been filtered you find a hole in your filter-paper, and you must begin again. Perhaps, after superhuman exertions you obtain a ppt., which you set in the water-bath to dry; on going with trembling anxiety to look after it you find some kind friend has knocked your crucible over and spilt it for you; more usually in my own case I knock it over myself—anyhow I have to begin again. On this particular afternoon it is my lot to weigh a portion of iron wire, with a view to dissolving it. I place a fragment solemnly in a dessicator and convey it to the balance room: both balances are occupied, so I open a window and lean out; the door slams, and shakes the balances, both men have to start again, and begin by abusing me. I explain that if they hadn't kept me waiting it wouldn't have happened, and with a view to moderating their transports I draw their attention to the deposit of carbon on the window sills, which is considerable. It seems to me that it ought to be utilised, and I suggest that a cabbage garden would be a profitable spec., but they don't seem inclined to invest. Soon after one of the balances is disengaged, and I spend the next three-quarters of an hour in peacefully weighing my wire. I then discover that I have omitted to clean it, and it must be weighed again. By the time this is accomplished somehow it is five o'clock, and with joy the wearied student leaves the abode of learning, with the consciousness of another day well spent.

AN AVERAGE SPECIMEN.

THE EXPERIENCES OF AN OVER-WROUGHT BRAIN.

I AM a victim in the hands of the ogre Competition, and that what I write may injure him to the utmost possible extent is my fervent desire from motives of revenge as well as of philanthropy. . . . . At length the term ended, and I went down to my home in the country with a large trunk of books, but with the laudable purpose of taking a rest until after Christmas. . . . . It was on the afternoon of that day—the day before Christmas Eve—that my affliction began. I was lying on the sofa in the little room, at the further end of the old parsonage, which had been set apart as my study from the time that I went to Camford. I felt depressed in spirits, but not in

bodily pain. Suddenly I thought the door opened, and I looked up. An extraordinary being stood before me, of a shape that might have been ridiculous but for the sinister glare in its eyes. The lower extremities of the creature were literally a "two-forked radish" of colossal size. The radish had no leaves, but was surmounted by two specimens of the common pump, side by side. The handles turned outwards like arms, and the pumps joined at the top into an ivory die of the size of a man's head, and apparently answering the same purpose, for the points of the face (which was the side turned towards me) were rudely fashioned into a mouth, nose, and pair of glaring eyes. A chimney-pot of approved modern shape, worn jauntily on an angle, completed the figure.

The monster entered the room, *creaking* its arms on their pivots, and rolling its eyes in time with the piston-movements in its body. It spoke, and its words blurted like water out of a spout. "Indolent, ignorant, infamous idler, why thus wilfully wasting your time here?"

I was immensely disgusted with my visitor, but withal considerably alarmed, so I merely moved round to the opposite side of the table, and hesitatingly enquired his name. His ghastly anatomy did not seem to strike me half so much as the fearful motions of his eyes. These were horrible indeed! and I was full of the vague, sickening apprehension which one often feels in ordinary dreams.

"Oh, you know me well enough," was the answer to my question, this time in a different and shriller tone. "You have worked me hard enough too in your day. Now it is my turn. I am the Root of Minus One!"

Before he had done speaking there was a heavy thud at the door, and in bounced a second person of equally unearthly shape, which, however, I will not trouble to describe accurately, even supposing that I could. He was more like an oyster on legs than anything else.

"Allow me to introduce my brother, the μὴ ὄν," said the Root of Minus One, in a mocking voice.

"Pray be seated," I said; for I saw that some conciliatory measures were prudent. The μὴ ὄν was very proud and corpulent, but he managed to squeeze into my easy chair, while his taller brother reclined at full length on the sofa.

"Fact is," said the latter, "I've had enough of it, and I mean to be eliminated, or it'll be the worse for you."

"Yes," grunted the μὴ ὄν, "and I've come to see that it's done. And if we two can't manage you there's the Eleatic ἕν waiting outside, and her friend, the τἆλλα, is sure to be within call."

"Really, gentlemen——," I began.

"Now, none of your excuses!"

I was getting angry. "Sir," I exclaimed, "I shall do as I please in my own room. I know you very well by name, and

though you are rather a slippery character, I am free to admit that you have more than once been of great service to me, but as for eliminating you just now, with my examination coming on in June, it is out of the question; and if you think that you are going to intimidate me——"

The Impossible Quantity seized a book of logarithms, which was lying on the table, and hurled it at my head. I ducked, and, while it went crashing into my pier-glass, sprang forward with the poker to strike my assailant. To my horror the blow passed clean through his body without producing the smallest effect, and, disappointed of my fulcrum, I fell heavily on the floor. The μὴ ὄν chuckled maliciously, and at a loud whistle from the Root of Minus One the auxiliaries they had mentioned rushed into the room. "I might have known that he was indivisible," I thought with the usual inopportuneness of a dream-soliloquy. The Hen, a small but very fierce bird, and the Tailor, to whose lanky extension in space there seemed no end, had pinned me down where I lay. I struggled, but was hopelessly at their mercy.

"Now," said the Impossible, addressing his Non-Existent ally, "jump upon him!"

"Oh," I soliloquised again, "he can't be any weight I should think." Never—except at Camford, on the day when I began to "put the steam on"—did I make a greater mistake. It makes me shudder even now to recall the agony of that incubus.

In the middle of the ruthless war-dance on my head and stomach, I fainted away; at least I suppose I must have, for the next thing I remember is being gently lifted from the floor of my study, and having my head bathed with cold water. They had heard sounds of scuffling while sitting in the drawing-room, quite at the other end of the house, and came to find me prostrate, insensible, and alone. The pier-glass was unmistakably shivered, but the book of logarithms with equal certainty lay upon the table uninjured, and in the exact position in which I had myself left it.

When I returned to Camford, after a year's absence, it was to eliminate Root of Minus One by taking up the Ordinary Degree, the mathematical papers for which do not include impossible quantities.

HAILEYBURIAN.

A YEAR IN A GERMAN SCHOOL.

On the 2nd of January, about four years ago, I started off with a cousin for a little town in the south of Germany, where we were to spend a year at school. We suffered the usual inconveniences in crossing the Channel, and we were both so bad that we had to stay a couple of days in Paris to recruit. Though we had both been very enthusiastic about the school, our spirits began to sink rapidly the nearer we got to our destination, and when at last the train did stop, I think we felt more inclined to take the next train back than to deliver ourselves into the hands of the teacher whom

we expected to meet us at the station. All the same, we felt rather forlorn when, after waiting some time on the platform of the station no lady appeared to welcome us. We neither of us knew a word of German, but we made the people understand that we wanted our luggage taken to the address which we showed them, and after some time we started out with a grinning porter dressed in a dark-blue blouse and wearing little gold earrings. I used to blush with shame when I met that porter afterwards, for we let him cheat us in the most abominable manner. He wheeled our luggage up to the house for us—I don't think it could have been more than half a mile from the station—and then cunningly demanded payment before we entered. Of course, he knew if we once got inside his chance of making a heavy profit would be gone. I soon learned the value of the German money. I now know what I gave that man, but I never mean anyone else to know.

We were warmly welcomed in the house with big-sounding German kisses, and we found that they were just going to meet us. There had been some mistake about the time of our arrival.

That evening I was examined, and in some points the examination was most instructive. I began with French, and came off very well; then went to History, and there pride certainly had a fall. Of general European history I knew nothing, and I learned very soon that of general European history one was supposed to know a great deal. Then came Arithmetic, and though I was not particularly good, I was told that it would not be necessary for me to do any more, as I was quite beyond the school classes. Then there came a horribly searching examination in Geography, physical and political, and there I made a heavy failure. The next morning my German education began, and for six weeks I was kept at German nouns and verbs, and very dull company they were. After this I was put into a class in the school, armed with a big dictionary, and told to do my best to keep up with all the subjects, excepting always the arithmetic. I did think that a little hard, for that was the one subject in which I might have distinguished myself a little in the eyes of those teasing little wretches. I soon found that the great subjects of the school were History, Geography, Literature, and Modern Languages. These subjects were all splendidly taught, and the amount of information which the girls showed, especially in the first three subjects, was, to me, marvellous. I grew more and more ashamed of my own ignorance every day. It was not that they knew their history and their literature only; they knew ours, too, and a great deal better than I did. One effect of this was that I took to reading a Globe edition of Shakespeare that I had brought with me, in all my spare time, determined that I would, at any rate, try and make some part of our literature my own.

I stopped in my class for about seven months, and then I was moved into the first class, which was really a sort of lecture class

for girls of about seventeen or eighteen and upwards. Here things were very different, and I have never been able quite to understand how it was that the earnest hard-working girls of the school could turn into such indifferent students in the highest class. It is true that some subjects were taught well and studied well in this class, but there were many classes that were really useless. For example, we were taught Astronomy and Chemistry, but in the most ornamental manner, and by the most ornamental professors. The astronomy was particularly feeble: hardly anyone thought of doing any work, and I am sure I do not know how the hour got filled up. History, Geography, and the History of Art went on vigorously, but everything else seemed to languish in this class, or Cours, as it was called. When the girls left school they settled down to house-work and domestic life, but I did not often hear of anyone doing reading after they had finished the school course.

There was something wanting in the school course. I don't think it would be fair to say that the intelligence was not cultivated, but I do think that there was too much stress laid upon imparting information and upon the cultivation of the memory, and that the original powers of the girls were not cultivated. Yet it seems to me that the course of study was so thorough in the subjects that I have mentioned, that more real culture ought to have been the result. Perhaps some reader of the *Magazine* will kindly enlighten me on this point.

I have said nothing yet about the working hours, the play, or the discipline of the school. I do not think that I have ever worked so hard in my life as I did for that year, and certainly I was never so well. We were obliged to get up at six, but of course we were often up earlier. Early rising was quite easy in that delightful climate, and with regular hours. We had coffee and two rolls of bread at seven, and we began school at eight. This was considered very late, most of the schools in the town beginning at seven o'clock. At eleven o'clock the hungry might get a piece of bread, at twelve o'clock school was over, and the boarders walked till one. The town was very pretty, and not too large, so that even in an hour's time we got up on the low hills round, and could pick wild flowers in the fields. At one o'clock we had dinner. Excepting for Sunday, the dishes recurred every third day with the greatest regularity. In fact, they might be likened exactly to a pure recurring decimal, with three places. On Sundays our housekeeper indulged in lofty flights of the imagination. One day we had roast bear. It was uncommonly tough, but the gravy was warm and consoling.

At two o'clock school began again for the six classes, but the girls in the Cours had the time for preparation. At four o'clock we could have a roll, with butter on it this time; and we worked on till seven, when we had a sort of tea supper. We had to

take it in turns to wait at this meal, and very hungry work we found it sometimes. After supper, we had French, German, or English reading, and needlework. One evening we had free, and then we always danced vigorously till prayers. I don't think we played at any games; the only other amusements besides the dancing were musical evenings, recitations, and theatricals. We had one such evening every month, and friends of the mistress had a general invitation to our open evening, as it was called.

Of course, the music was exceedingly good. There were a good many music students amongst the day boarders, and a few amongst the boarders, and we were able to get up really first-rate performances. There was a Conservatorium in the town, and, of course, this gave a powerful stimulus to the teaching of music. Theatricals and recitations were also good, and the girls showed great vigour and ingenuity in the invention of costumes. In the summer we made every Saturday a half-holiday, and went long expeditions into the country, always stopping at some little Bier Garten for coffee, or—I hope my readers will not be too much shocked—the more vulgar refreshment of cheese and beer. In the winter evenings there were plenty of concerts, and as the performance at the theatre was a very early one we could go to that without interfering much with our work; in fact, it was considered almost a religious duty and part of a girl's education to see Schiller properly put upon the stage.

G. D.

THE UNION.

April 20th.—Mr. Cullis in the chair. There was no business to be transacted, therefore Mr. Cullis called upon Miss Isabel Evans to read her paper on Mosses.

Miss Evans exhibited a large assortment of mosses which she said she had collected from various sources, including Norway, Switzerland, and Broad Street. Miss Evans opened her paper with a quotation from an eminent botanist, and stated that mosses formed almost a fourth part of the vegetable clothing of England and Scotland. Mosses precede all vegetation in mountainous districts, their use being to form a foundation for more highly organised plants. They occur chiefly in the temperate and frigid zones. Within the Polar circle they flourish in great variety; in the equatorial regions they are comparatively rare. Mosses are classed among the Cryptogams, or plants which have no evident or true flowers, and are placed in a class immediately below ferns and above fungi. *Structure:* Their structure is comparatively simple. Towards the centre of the stem there is merely a collection of thin-walled narrow elongated cells, and a few groups of similar cells are scattered in the surrounding tissue of ordinary loosely-packed cells. Towards the exterior the cells become thick-walled and angular, and are of a bright-red or yellowish-red colour. The stems vary much in shape and colour; the branches never grow in the angle between

a leaf and a stem, but arise by the side of or below the leaves. *Leaves:* The leaves either clothe the stem or surround the base of the fruit-stalk or seed-vessel, in which case they bear the same relation to the reproductive organs as petals and sepals to the flowers of Phanerogams. *Stomata:* These are found only on the hard dry capsule or seed vessel. There is probably some means by which the tissues communicate with the exterior to enable them to absorb water in the way they do. *Roots:* Mosses have no true roots, but only root-hairs; much of their nourishment being derived from the atmosphere. *Life History:* The adult plant produces moss flowers, consisting of male or female organs, or both. The male organs are called *Antheridia*, and the female organs *Archegonia*. Miss Evans then proceeded to describe the process of fertilisation in mosses, illustrating her remarks by means of numerous diagrams. Many of the mosses have organs for vegetative propagation, commonly known as bulbils; they are also capable of multiplication by simple branching and innovation; some of the commonest forms increase chiefly by these methods, and rarely produce capsules. Miss Evans then alluded to one or two specimens in detail: bog mosses, Funaria Hygrometrica and Lycopodium. Lichens, which are so commonly confused with mosses, belong to the Fungi; they are always parasitic upon some organism, either living or dead. Miss Evans concluded her paper by describing the pleasure and benefit to be derived from forming even a small collection of mosses, and gave a humorous description of a day spent in Charnwood Forest, with a pony and a brother, in search of bog-moss. "Bogs are not plentiful in Leicestershire, and we jogged along for some fifteen miles without finding one. I need not linger to tell incidents of our journey—how we went into ecstasies over every damp ditch, how we lost our way, and an intelligent rustic intimated that if we went straight on it was about twenty hundred thousand mile, but if we turned round and went the other way it was about half a mile; how we divided our last sandwich, and it turned out that the knife had been last used to skin a shrew mouse; how we began in despair to quote "First catch your bog," and how our search was finally rewarded by finding one very small patch of sphagnum, which we promptly removed. But I can conscientiously recommend you to go and do likewise."

Mr. HILLHOUSE said that before he made any remarks on Miss Evans's paper, he must express the pleasure that he and Mrs. Hillhouse felt in being among the students again. He then complimented Miss Evans on her paper, saying that he could vouch for its substantial accuracy, if not for its picturesque details. The audience then proceeded to examine the specimens arranged on the table.

The CHAIRMAN then called upon Mr. Ledsam for his paper on "Galileo."

After giving a short account of Galileo's birth and family, Mr. LEDSAM proceeded to describe the many difficulties with which the young philosopher had to contend at the outset of his career. His conflict with the followers of Aristotle, who refused to accept his theory of terrestrial motion, his sufferings at the hands of the Italian inquisitors, his enforced abjurations of his heresies, were eloquently related by Mr. Ledsam.

Mr. BLAKE, in a short but most ingenious speech, objected to any interference, official or otherwise, with honest scientific research, or with the expression of opinions which might be at variance with accepted theories.—Mr. GREATHEED wished to re-echo the remarks of Mr. Blake. He had no sympathy with Galileo's tact in escaping the rack by abjuring what he knew to be true. He admired Galileo the thinker, but he questioned his right to be considered a martyr.

The Ordinary Meeting, held on May 4th, was well attended, and we were pleased to notice the presence of Professors Arber, Haycraft, Hill, Hillhouse, Lapworth, Sonnenschein, and Tilden; Mrs. Hillhouse, and Mr. Turner.

The CHAIRMAN referred to the resignation of Mr. Carter, one of the Committee, in consequence of business engagements; of the removal of Dr. Morris, the Chemical Demonstrator, and of Mr. Tunstall, to new spheres of work; and to the election of Miss I. C. Evans as treasurer, upon the resignation of Miss Naden. We may mention that Miss Edwards succeeds to Miss Naden's place on the Committee.

The sale of the *Magazine* inside the College was stated to be not entirely successful.

The subject of debate, "That the adoption of a vegetarian diet would be advantageous to society," was introduced by Miss B. CLARKE. She adverted to the difficulty with which people altered erroneous and fixed habits of life, and chose Dr. Johnson's somewhat contradictory definition of a vegetarian as "one who abstains from animal food, and lives on vegetables, eggs, and milk." Dr. Letheby's tables were quoted, and the moral deduced that if he wasn't a vegetarian, he clearly should have been. The deficiency of nitrogen in vegetables was to be made up by eggs, butter, and cheese. If all England was devoted to agriculture in lieu of pasturage a population of 60,000,000, instead of half that number, might be fed. We should then be less inconvenienced if war should cut off our foreign supplies. As animal food brings with it an alcohol craving, crime would be diminished by its banishment. The opportunity of cruelty to animals would be done away with, and boys would no longer be apprenticed to callousness.—Mr. BARWISE viewed the matter chiefly in its physiological aspect, though he had informed himself by personal enquiry in the market of the cost of various food stuffs. Certain

diseases followed various diets. Carbon in excess, as in vegetables, caused fatty degeneration and predisposed to rheumatism and its congeners. Ill effects would not show themselves at once, as the more important tissues might take longest to degenerate. His opponents suffered from a sorry confusion of ideas, even intimating that alcohol was animal food and suet vegetal. The low price of vegetables must not mislead, for as the demand increases the price will rise, though perhaps, in an unexpected way, exclusively vegetarian diet will "relieve our present over-crowded population." Dentition did not much affect the question, since for many centuries man has cooked his food. Internally we have not contrivances such as crop, rumen, and cœcum, necessary for the slow digestion which vegetable food requires. If there are any healthy vegetarians, it must be because they take excessive exercise, carefully study physiology, and even prescribe such minutiæ of spiritual diet as daily music and intercourse with children. Dr. M. Foster states that when rapid growth is taking place, a highly nitrogenous meat diet is desirable.—Mr. St. Johnston pointed out the dangers incident to diseased meat; ten per cent. was condemned, and much must escape. Africans could live exclusively on the yam. The strongest animals, the elephant and the horse, were exclusively vegetable feeders. From Persian soldiers to American miners, hard workers were seen to thrive on vegetal food, and the vegetarians present were conclusive proofs that the diet did not produce the awful consequences enumerated by the last speaker.—Mr. Jenkyn-Brown in a humorous speech pointed out that in Birmingham antiquity of custom or habit would be a sufficient excuse for getting rid of it, and depicted the awfully competitive state of the country when it should support 60,000,000 vegetarians, each of them leading the increasedly intellectual lives claimed as the result of vegetarianism. The butcher was a highly respectable tradesman, and at least as honourable as the sportsman. Central Africa, whatever its local diet, must not be looked upon as intellectually and morally superior to England; and he pointed out that the most eminent instance of historic vegetarianism had been one of pure compulsion.—Mrs. Tyndall was introduced by Mr. Ledsam as a visitor. Butchers and publicans are the shortest lived, German and French who are more vegetal in their diet, work longer hours than we do. Two-thirds of the world, including Mohammedans and Buddhists, are practically vegetarians. A friend of hers had forty years lived on sixpence a day and thought with Professor Newman that one of the greatest pleasures was to sit down to a meal which any working man might have. (Loud applause). Young vegetarians sometimes made a mistake in not selecting the right sort of food. Wounds healed more quickly among grain-eating people, and the French were the richest people in the world.—Miss Ellerman wished to know how we were to obtain milk without breeding and sacrificing calves.—Mr. Carter

pointed out that Highlanders in certain districts, though almost purely vegetarian, were large whisky consumers.—Mr. GREATHEED was in favour of a very varied and mixed diet, inclining, however, to vegetarian; believed that an exclusively meat regime was compatible only with intense muscular exertion, as in the case of the horsemen of the Pampas and Australian squatters. The vegetarian injunction, "Fix upon that course of life which is best: custom will render it most delightful" was *à priori* and vicious. Semper showed that by persistence the internal structure of carnivorous birds might be altered to that of graminivorous, and *vice versâ*. The proper test was the amount of work achievable. If wounds healed more quickly with the Hindoos, it was because they were less evolved, and if the French were rich the potato-eating Irishman was exceedingly poor.—Mr. TURNER deprecated crude deductions from ultimate constituents; prussic acid, strychnine, and cellulose all containing the desirable nitrogen. The experience of ages was really the best test.—Miss CLARKE rejoined, and pointed out that if "convenience and pleasure" merely were considered, Friday was justified in cannibalism.—The motion was eventually lost by a large majority.

OUR CONTEMPORARIES.

We acknowledge with thanks the receipt of *The Cheltenham Ladies' College Magazine*, *The Marlburian*, *The King Edward's School Chronicle*, *The Institute Magazine*, *Laurel Leaves*, No. 5, *The Haileyburian*, *Our Magazine*, *Girton Reviews*, and *The Owens College Magazine*. We also have to thank the Editor of *The Journal of Science* for a kindly notice of *The Mason College Magazine*. The writer of the notice says:—"The second issue of the *Mason College Magazine* is a decided improvement upon its predecessor, and makes us hopeful as regards its future. The article on 'Scientific Idealism,' from the pen of Miss C. C. W. Naden, is an exceedingly able and luminous exposition of a theory which seems to be forcing itself upon the attention of thinkers. We believe that the writer will leave her impression on the philosophical literature of the age, which indeed stands in some need of recasting."

The notice of our February number in the current number of the *King Edward's School Chronicle* we should call rubbish if "written by a man;" but as its author is a "mere schoolboy," we will content ourselves with calling it "*cheeky* and exceedingly *soft* reading." *Ne sutor ultra crepidam.* Youths educated in a classical school naturally do not understand what is meant by Scientific Idealism. Clearly the understanding of a subject depends, not so much on its intrinsic difficulty as on the receptivity of its readers. We can, therefore, scarcely wonder that Miss Naden's article passes the comprehension of the K. E. S. boys. Their

quotation is singularly unfortunate, as we are under the impression that "Elysian heights" and "Tartarean depths" have some connection with Latin mythology, and might therefore have come within the grasp of their scholastic intellects. Possibly, knowing as we do their opinions on the women's education question, our article would have been better received had it been written by one of those somnolent "male Masonians" to whom such an eloquent appeal is made. The disarticulated skeleton appears to have tickled them exceedingly. Could not arrangements be made with Messrs. Mappin & Co. to supply a gross or so of miniature skeletons on sticks, something after the style of "Willie's purple monkey," and at a price within reach of our juvenile friends?

The Marlburian contains a full account of the School Sports, and an amusing article on "Railway Passengers."

The Institute Magazine contains an account of a visit to Spain, and an inviting description of Holland as a field for English tourists. The "Visit to Spain" is written in a bright and interesting manner, and is well worth reading.

The Haileyburian (March and April) contains some excellent articles, as well as a good amount of school news.

Our Magazine, North London Collegiate School for Girls, is one of the most successful school papers that we have seen. It contains articles on "Chivalry;" "Birds of a Feather Flock Together," an amusing account of a candidate's experiences in the Cambridge Locals, in which the writer says, "It is rather startling when an Examiner gives an announcement (as he once did) like this: 'And now, please, will the junior papers give up their candidates.' It makes one wonder whether one is a Candidate or a Paper."

NOTICES.

Professor John M. D. Meiklejohn, M.A., will deliver a course of six lectures on "The Practice and Methods of Education" during the months of May and June, 1883. The first lecture will be given on Monday, the 21st of May, at 7.30 p.m. No fee will be charged for these lectures. Tickets to admit to the course of six lectures may be obtained from the Secretary, Mr. Geo. H. Morley. There is a great demand for tickets, so students will do well to apply for them as early as possible.

Dr. Morris.—When our April number went to press, we were ignorant of the fact that Dr. Morris was about to leave the College, and so no notice of his departure was inserted. The students who have worked under Dr. Morris, and all who know him are extremely sorry to lose him. Dr. Morris came to the College when it was opened, and we believe that he had been working under Dr. Tilden, at Clifton, before he became his demonstrator here. Dr. Morris has left us for Burton, where he occupies a post in the chemical department of the firm of Messrs. Worthington and Co.

COLLEGE INTELLIGENCE.

GEOLOGICAL EXAMINATION.

JUNIOR CLASS.

Marten, H. B.,	91 per cent.
Dixon, C. W.,	82 ,,
Myers, L.,	80 ,,
Silvester, H.,	79 ,,

SENIOR CLASS.

Gibson, W.,	87 per cent.

ELEMENTARY ZOOLOGY.

CLASS I.

Jordan, E.
Sadler, E. A.
Snell, E. H.

ADVANCED ZOOLOGY.

Blake, J. E. H.
Evans, C.
Mathews, M.

FRENCH.

Full Marks, 200.

SENIOR CLASS.

Tarleton, Miss,	168.
Gamgee, ,,	144.
Haywood, E., ,,	129.
Haywood, H., ,,	124.
Barker, ,,	105.

Full Marks, 150.

JUNIOR CLASS.

Bridge, Miss,	103.

PRELIMINARY EXAMINATION OF THE ROYAL COLLEGE OF SURGEONS.

Fitch, C. D.
Hill, —
Featherstone, W. D.
Harrison, S. H.
Emery, F. W.
Barwise, S.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Sir,—I see that the subject of the character of the contents of our magazine is being discussed in your correspondence. I think that the feeling of many of the readers of the magazine is that many of the articles are too heavy and too technical.

To an unscientific reader like myself it is rather depressing, to say the least, to begin reading an article, and to find in the first paragraph such expressions as "kinetic" and "potential energy," for the meaning of which one has to refer to a Scientific Dictionary. A little further on, in the same article, I am floored by the expressions "microphonic wailing," "but the merry apes only smiled, weaving myriads of microscopic shrouds," and "senile atrophy." To understand an article such as the one to which I am referring, a reader with an *ordinary* mind, may I say, ought to have by him for reference Latham or Webster's English Dictionary, an Encyclopedia, and a Dictionary of Scientific Terms.

Now, it does not seem to me that a magazine such as ours need contain scientific articles so technical as these. Will not the writers have pity upon and thought for the uninitiated, and express themselves in simple and untechnical language?

Those who have heard the introductory lectures on physiology, geology, or botany can testify that this can be done, and yet that the subjects can be treated in a scientific manner.

May I, through your columns, ask Mr. Greatheed to explain the phrases I have mentioned?

I am, yours, &c.,
LILLIE DALE.

To the Editor of the *Mason College Magazine.*

Sir,—Will you permit me to make a few remarks with reference to the reply to my paper upon the "increasing predominance of brain over muscle," and to point out some instances of faulty reasoning, which Mr. Greatheed, as a trained logician, will doubtless be able to name and classify. My first example, which forms one of his leading illustrations, I will call a false analogy. The supposititious ape, who "took to two legs," did not cease to use his arms.

He began to use them for many hitherto unwonted purposes, and this new kind of exercise would expand his chest, make his respirations deeper and fuller, and promote tissue, combustion, and nutrition. The heart would become more healthy, as well as more active, and better able to adapt itself to increased work. On the contrary, the sedentary brain-worker does nothing which can improve his vital organs. He neglects to use his limbs, and gets narrow-chested, while his combustion processes go on slowly, from feeble respiration and lack of muscular exercise. His heart, weak and sluggish, cannot adapt itself to new conditions. Besides, excessive activity of the cerebral cortex tends to *inhibit* other nerve centres. Again, Mr. Greatheed falls into the common error of supposing that the statement "This is an evil" is satisfactorily met by the answer "There is no cure for it." It is of course impossible to stop voluntarily in the race of so-called civilisation, but the questions whether this race is towards a desirable goal, and whether we may not some day be *compelled* to stop or to turn in a different direction, are in no way solved by this truism.

In conclusion, I may say that a certain degree of specialisation is doubtless necessary, but I have tried to show in my paper that its extreme development, towards which we are tending, must be injurious both to the individual and the race.

Yours, &c.,
CONSTANCE C. W. NADEN.
Rome, April 25th, 1883.

To the Editor of the *Mason College Magazine*.

Sir,—I read in your March number the suggestion that personal experiences should be contributed. I therefore send you those of some friends. I was staying last Christmas at an old country house near Birmingham. After dinner one evening we all sat round the fire and fell to relating various small adventures. Our host gave us the following true account related to him by a lady of her own childhood:—She lived, she said, in a haunted house. Some years ago her brothers and sisters, some young visitors and herself were playing about in the nursery in the evening before going down to dessert. Suddenly she heard the rustle of a dress, and, turning, saw a lady glide in at the door, which stood open; the lady walked a few feet into the room and retired. None of the other children saw the "strange lady," and the child was so surprised (she says not frightened) that she was unable to speak for several seconds. Afterwards she gave, and could to this day give, a complete description of the clinging dress worn, and also can recall the lady's face. Children as a rule are not troubled by hallucinations and nervous fancies; so that tale seemed a very probable one to me when I heard it, though I am not a staunch believer in ghosts.

A personal friend of mine gave a little account. She was once staying for a night near Dudley, after a garden party. She and her friends sat up rather late talking over the "do;" at last the girls left her, and she got into bed and put out the light. All at once she felt the bed-clothes move, and the curtain (it was evidently a non-hygienic bed) was drawn aside, and then put back. She told us she didn't wait for any more, but jumped out of bed and joined the other girls. Up till that time this girl had never believed in ghosts or spirits of any kind. She is singularly plucky; about 5ft. 11in., and so as far as size goes has no reason to fear man or beast; physically and mentally strong, the word hysterics isn't in her vocabulary. She goes out a great deal, and it seems very improbable that a garden-party should result in a "nerve attack" when the existence of nerves had only been known theoretically, and not practically, to her.

I suppose there is no accounting for either of these tales; but it seems to me the old adage of "nothing new under the sun" isn't *always infallibly* true.—I am, yours truly,

AGNES E. RUBERY.
5, Highfield Road, March 5th.

To the Editor of the *Mason College Magazine*.

Sir,—I find in the "Autobiographic Memoirs of Edward Gibbon" a picture in no small degree reminding me of experiences within a hundred miles of the Chamberlain Monument:—

"I cannot forget a private institution which will display the innocent freedom of Swiss manners. My favourite society had assumed, from the age of

its members, the proud denomination of the Spring *(la société du printems)*. It consisted of fifteen or twenty young unmarried ladies, of genteel, though not of the very first families; the eldest perhaps about twenty, all agreeable, several handsome, and two or three of exquisite beauty. At each other's houses they assembled almost every day, without the control, or even the presence, of a mother or an aunt; they were trusted to their own prudence, among a crowd of young men of every nation in Europe. They laughed, they sang, they danced, they played at cards, they acted comedies; but in the midst of this careless gaiety, they respected themselves and were respected by the men: the invisible line . . . was never transgressed by a gesture, a word, or a look. . . . A singular institution, expressive of the innocent simplicity of the Swiss manners." [Life and Letters of Ed. Gibbon (Chandos Library), p. 73.]

Soothed by such recollections the historian pursued his labours, intermitting them, however, with some cynical, but none the less truly prophetic advice to the Birmingham sage: "Leave Thaumaturgy to defend itself: it is Chemistry which will make your reputation." Such was practically his counsel to Dr. Priestley: "Remember the end of your predecessor Servetus. If his book on the Trinity is still preserved, it is only because it contains the first rudiments of the discovery of the circulation of the blood." (Ib., p. 276.)

Would he have seemed a little less bitter had Mademoiselle Susanne Curchod, the accomplished and virtuous belle of Lausanne, been at his elbow, to give to his stately periods a *couleur de rose? Hypotheses non fingo.* The half-hearted Gibbon had "signed as a lover, obeyed as a son" (ib., p. 48). Susanne, the poor pastor's daughter, became the charming wife of the French minister Necker, and the solitary Gibbon hugged to his bosom for consolation a fame measured by continents in space, and in time by the century.

But the world, which still thanks him for his history, has not yet done laughing at his diffident wooing.

Yours faithfully,

W. GREATHEED.

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THE Mason College Magazine



EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

JUNE, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

"JOURNAL" WORKS, TYP.

JUNE, 1883.

Saturday,	16.—Date of Founder's Death.	
Monday,	18.—M.A. Exam., Branch III.	Matric. Exam.
Tuesday,	19.—*Id.* ———	*Id.* ———
Wednesday,	20.—*Id.* ———	*Id.* ———
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Saturday,	23.—Summer Term Examinations begin.	
Monday,	25.—	
Tuesday,	26.—	
Wednesday,	27.—	
Thursday,	28.—Coronation of Queen Victoria.	
Friday,	29.—	
Saturday,	30.—Last day for giving Notice for Prel. Sci. (M.B.) Exam.	
	[Summer Term Examinations end.	

OCTOBER.

Monday,	1.—Opening of College, 1880.
Tuesday,	2.—Winter Term begins.
Wednesday,	3.—
Thursday,	4.—
Friday,	5.—
Saturday,	6.—
Monday,	8.—
Tuesday,	9.—
Wednesday,	10.—
Thursday,	11.—
Friday,	12.—
Saturday,	13.—
Monday,	15.—

NOTICE.

The Magazine will be published every Month, except July, August, and September.

It will be published at Cornish Brothers, 37, New Street, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 4s. 6d. 5s. post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 6, Vol. I. JUNE, 1883. Price 6d.

VIBRATIONS.

Before laying before you this paper on Vibrations, I must explain that I had not a very definite idea as to what form it would take when I somewhat rashly undertook to read it. After reading it through myself, I found that in it practically every concrete thing is, in one way or another, reduced to a system of vibration.

I have avoided technicalities as far as possible, both because a full exposition would mean several volumes and a knowledge of fact which is only to be found in encyclopædias, and because such technicalities would be more likely to induce sleep than scientific edification among my audience. And I have avoided bringing the most wonderful of all known entities—the human mind—into discussion, first, because it is the instrument with which I have written this paper, and therefore ought to be exempt from its own self-analysis, and also because I have always found that attempts to analyse it have "made confusion worse confounded."

I remember seeing a startling announcement in *Nature*, professing to show that predestination and free will were at length reconciled. The author claimed to prove this by reducing "thought" to the deflection of phosphorised brain particles—their ordinary and normal deflections were the thoughts which necessarily took place in the individual; but when he exercised his will, certain *ab*normal deflections resulted, and these deflections necessarily represented free will thoughts: proving thereby, I suppose, that free will is the necessary or predestined consequence of abnormal deflections.

This struck me as a forcible illustration of what I believe to be the great danger into which so many technical students of science are apt to fall—that of thinking they have satisfactorily explained the nature of some physical or vital principle when they have been able to trace it to some simple factors, such as protoplasm, and the

necessary relations by which a structure is built up from it. And when, in this paper, I attempt to show that vibratory motion is a principle involved in all the phenomena with which we are acquainted, I hope you will not think I am cheapening the universe, or detracting one iota from the wonder of its intricate workings.

* * * * * * * * * *

I will first of all give a liberal definition of a vibration. It is simply *recurring motion.* Certain particular vibrations may be more narrowly defined, but "recurring motion" will embrace all about which I wish to speak.

Taking a general survey of animal life, it will be seen that the sensations and emotions often are visibly expressed in local vibrations. We experience a sudden excitement—we *quiver;* an undefined dread—we *tremble;* a chilly blast—our teeth *chatter;* an electric light—our eyes *blink.* In other words, these emotions and sensations give rise to vibratory motions affecting the whole or part of the human frame.

The lower animals are blessed with a pendulous excrescence eminently adapted to express their sentiments in terms of vibratory motion. You express your appreciation of the noble qualities of a dog by vibrating your hand on his head: he expresses his gratification at your insight by a dignified wag of his tail. The same sentiment—that of gratification—may be observed in the ricketty little lambs while partaking of maternal refreshment; the vibratory motion of their caudal appendages is only an incipient wag—in vulgar language, a *wobble.*

The domestic cat expresses, I believe, different sentiments when it waves its tail to and fro; but the whole animal is found to vibrate audibly when it is supremely contented and stroked the right way down.

The life of man may be looked at as a vibration. Like a wave of the sea, in each individual there is a rise, a climax, and a fall; and then a successor, more or less like, occupies his place. The nation survives longer: a sea of individuals having its tides, its ebbs and flows—in short, its vibrations.

We have seen that the sensations and emotions which are the sum of life are superficially expressed in recurring motions. I now hope to show that our senses are affected, and, as far as we know, affected *only* by vibrations.

To begin with, the ear is capable of transmitting certain vibrations in the atmosphere to the brain. Some ears have a wider

range than others. Many people have never heard a bat squeak, because the vibrations of its squeak are too rapid for the rods and fibres to convey them to the nerve. But the ear is affected by many simultaneous sound vibrations, and their combination and sequence constitute the vast field of harmony and melody, or the reverse. Some people indeed look forward to a time when all our thoughts shall be expressed in music, instead of those verbal vibrations eked out with gutturals and dentals.

Next we have the sense of seeing. The scientific paraphrase may thus be stated: certain vibratory motion falling on the retina excites *sensory impulses*, and these passing up the optic nerve to certain parts of the brain produce changes in certain cerebral structures, and thus give rise to what we call a *sensation*. These sensations are probably somewhat different for respective individuals; still, unless colour-blind, we are all more or less similarly affected by the same "effect of light" or "combination of light vibrations." A sunset, like a sonata, has for us its harmony and melody—its harmony of blended tints, its melody of beautiful change.

There remain the three less important senses—those of touch, taste, and smell.

The vibrations commonly known as heat affect our tactile sensations. When the temperature of the skin is raised or lowered in any spot we receive sensations of heat and cold respectively. External pressure, if sufficiently sudden, also makes itself apparent to our tactile sensations. Taste and smell are as yet not thoroughly understood, but are doubtless caused by vibrations affecting the nose and the palate.

I mentioned just now as a form of pleasure-giving vibration, that of patting a dog on the head. This may be thought rather far-fetched, since it is hardly automatic, and does not produce the desired tail-wagging unless gently and judiciously administered.

Viewed scientifically, the patting is a very complex action, modified by the temper of the man and of the dog, and dependent for its effect partly on their mental and partly on their physical conditions and relationships. But the analysis of a single pat by the light of physiology shows it to consist of a series of well-defined vibrations. The will decrees that the hand shall descend from a certain point until it is interrupted in its course by the dog's head. To carry out that decree a certain amount of vital force passes into the nerves and muscles of the arm, thereby producing what are called "negative variations," resulting in the desired change of muscular contraction. Bernstein finds the negative variation in the

muscle, travels in the form of a wave, velocity three metres per second, and wave length ten mm.; and it is interesting to note that these vibrations excite others, for the galvanometer shows a rise of temperature—*i.e.*, heat vibrations are induced—and the stethoscope discovers a muscular *sound*, the fundamental vibration being 19·5 per second. Though we know little of the "mode of motion" by which the nerves telegraph their messages to the brain, they present analogy to the electric wire; and it is found that electric excitement of the gustatory nerve will produce the taste of acid or alkali, according as the positive or negative electrode is applied to the tip of the tongue; while Dewer and others show that the incidence of light on the retina produces electrical changes comparable to those resulting from the stimulation of an ordinary nerve.

Now we come to the various forms of energy which either directly or indirectly affect our senses. Of sound we know and can measure the longitudinal vibrations, and can state their frequency of occurrence.

Of heat and light we know that the vibrations differ only in degree, and not in kind. The ultra red rays do not affect our vision, but are sensible as heat. The ultra violet do not affect our senses at all, but are capable of effecting certain chemical changes, notably with the salts of silver; so that photography may be referred to vibrations. Again, light has led to the rich field of investigation known as spectrum analysis. Certain light vibrations are interfered with or neutralised by the different elements, and this, apart from other considerations, argues vibrations on the part of the elements themselves.

The forces known as electricity and magnetism have not yet, so to speak, been analysed. We know that magnetism is a kind of transverse electricity, and we know something of their relation to other forms of energy; but of their essential character we know next to nothing. The same may be said of attractive force due to mass, and also vital energy. Still, bearing in mind that all forms of energy are more or less mutually convertible, and that, where we *do* know something of their nature, we find it to be vibratory, the presumption is strongly in favour of our regarding *all* forms of energy as partaking of that vibratory nature. I have said little respecting the measurement of vibrations, or of the value of vibrations as means of measurement. What we call *time* can only be measured in vibrations—in seconds, minutes, days, years, æons: time itself is but a vibration in eternity. We take

as our units of time the recurring period of the earth's motion round the sun, or fractions of that period; or we take the recurring motions of the stars to calculate præter-mundane time. There are other periods, such as that of the trade winds, prevalent in particular places, and important to certain communities.

I have hitherto avoided speaking of "matter," as I hope to show that matter is by no means of necessary existence. If this announcement sounds startling, not to say presumptuous, I will fortify myself with a quotation from Turgot, who says, "He who has never doubted the existence of matter may rest assured that he has no aptitude for physical enquiry." Let us see where science lands us on this point.

We start with the atomic theory—a theory without which chemistry would cease to be a science—and we find that what we call matter consists of sixty odd elements, with a limited power to add to their number. Many of these we find in the sun, and other stars, and therefore reasonably suppose the universe to be more or less composed of these same elements.

Each element has its own special properties, among which definite weight is a quantitative and most useful characteristic.

Now, a comparison of these definite weights, coupled with the general properties of the elements, has led chemists to see that they form a series, each element, placed in the order of its atomic weight, bearing a definite relation to those immediately following or preceding it; so that where there is a break in the sequence, we assume that an element is wanting. Gallium, we know, came and answered to its prophesied description.

The commonly received interpretation of this "periodic law" is that all elements consist of the same substance, and that their difference is due solely to the quantity condensed in their different units. The series of hydrocarbons known as the "homologous series" presents an analogy, each member of the series measurably differing in properties, and that difference being due to the varying quantities of carbon and hydrogen contained in the compound.

This identity of matter—the dream of the older philosophers—would now appear a reality. The spectroscope points to it independently. Thus, before the "periodic law" had been formulated and presented to the world for inspection, Cook, in his "Chemical Philosophy," says:—"The several monochromatic rays which are emitted by the elements in a state of incandescence must receive their peculiar character from some motion in the atoms themselves which is isochronous with the vibrations

displayed by their rays of light. It is possible that the *individuality* of the element may depend upon this motion, and thus, in essence, all matter may be identical."—(Cook's Chem. Phil., p. 190.)

It is now generally allowed that atoms are in a state of vibratory motion, and that they form systems or molecules, also in vibratory motion. Probably, also, the *internal* motion of the atoms themselves is vibratory; possibly, that motion partakes of a vortex-ring character, as suggested by Sir W. Thompson and Helmhotz. At first sight it might appear that this infinite complexity of vibratory motion is incompatible with the fixity and stability which we associate with sticks and stones and other inanimate solids. But the contrary is the actual fact: it is their very motion which keeps them in their places; and were that motion to cease suddenly, it is my belief that they would not only shrink in microscopic porportions, but would vanish altogether—there would be absolutely no stick or stone left, only certain forces waiting a fresh crystallising touch to set them vibrating in some other complex system, when they might appear as grasshoppers, or cabbages, or anything you please.

We see, then, all matter resolved down to a primordial and single constituent.

Imagine an infinitely microscopic eye, which could pierce through the gloom prevailing inside the wood of this table. To it a mighty universe would be revealed. The fixed motion of the stars would be that of the molecules, and the atoms would be their respective planets, the atoms themselves being composed of a revolving something which we will call x.

Let us leap from the infinitesimal to the infinite. Space, we are told, is everywhere peopled with matter. Here the matter is condensed into worlds, suns, or stars—a network of elliptic vibration; there again, into comets' tails or intangible nebulæ; but for the most part, comprising a certain imponderable ether, capable of transmitting vibrations of heat and light, and, judging from these vibrations, apparently partaking of the nature of a solid. Possibly a part of this unfathomable space may be penetrated, as Siemens suggests, by rarified hydrocarbons; but surely this ether is nothing more or less than the primordial x—the atom stuff, and the world stuff. It has been compared to a fluid subject to whirlpools, condensing into vortex-rings, and these rings finally into solar systems.

We may laugh at the vain attempts that have been made to summarily dispose of matter—*e. g.*, Schelling's suggestion that it

resulted from the conflict of two opposing forces; but we arrive ourselves at a dualism, and say that force cannot act except on matter.

This statement is based on the following facts :—

(1) That we cannot experiment on the effects of force without something tangible to show those effects.

(2) That the indestructibleness of atoms suggests permanent material.

(3) That atoms have definite weight like other masses, and mass to us is synonymous with matter.

With regard to the first there are two fallacies. In the first place, we beg the question, for when we say that force must act on something tangible, we imply that anything tangible must be material; and, secondly, the fact that we only can *investigate* force acting on something tangible is no proof that it *may* not act on something intangible.

With regard to the indestructibility of atoms, we see that though *we* cannot destroy them they probably result from the condensation of what we have called "ether," and so, theoretically, are resoluble again into it; and supposing they *were* indestructible, why should they not be indestructible units of force?

And this brings us to the third consideration—that of weight, by which we mean the attraction which the earth exerts on the mass of the atom.

Now, this seems to me the strongest argument against the hypothesis of matter, for we have to postulate two distinct and arbitrary ideas: first, that matter exists *per se*; and, secondly, that from its very nature it *must* possess force—what we call the "force of attraction," whether it be atom for atom, atom for the earth, or earth for the moon.

Now, if we can account for all these phenomena without the conception of matter, it seems to me that matter is not of necessary existence.

Excluding matter, what have we left? Force, Space, and Time. Now, it is evident that force is not evenly spread over space, else there would be a terrible equilibrium—the stillness of death; so I have the right to postulate that force may be concentrated at different points or areas in space. Now, why should not one point of force act upon another point of force just as easily and more simply than one atom of matter endued with force upon another atom of matter endued with force? And, similarly, why should not these points of

force form systems occupying a definite area, vibrating among themselves, and jointly affecting and vibrating with other systems of a similar nature?

If I had asked, fifty years ago, "Why cannot I stick my hand into the wood of this table?" I should probably have been told that just as you can't be in two places at once, neither can you have two things simultaneously in one place. *Now* it would be explained to me that the vibratory motions of the molecules in this table jointly occupy the space which the table includes, and which will not admit of the introduction of another system of molecular vibration, such as my hand, without upsetting both systems: in which case both the hand and the table would cease to exist (as such). Does this scientific explanation seem less incredible than that which boldly denies the necessity of matter, and allows that the intricate play of forces constituting the table would be disarranged if another force system interfered with its sphere of action?

The philosophy of the ancients in striving to realise a unity was often confused in its terms, though true in its aim. In the Hermetic Mystery we are told that "there is a distinct substance universally diffused, though sensible only in its mixed forms and powerful effects; that it is the alone pure and active source of all things, and most firm bond of the natural elements, giving life to all bodies, penetrating and sustaining all things, and enlivening all; that the mighty ether, moreover, is always at hand, ready to break forth into action on all predisposed subjects—fermenting, producing, destroying, and governing the total course of nature."

I would but substitute a universe of vibrating force, system within system, system by the side of system, vibrating like a complex but harmonious orchestra—for the music of the spheres is more than a poet's fancy. We, in the midst of this for a brief moment, cannot hope to understand the whole. Our lives are but notes in the *vox humana*; and when the piece is over may there not be a change—the vibrations combine again, in laws, may be it, as fixed as these, to raise another pæan? But before such an event comes to pass—

> The cloud-clapp'd towers, the gorgeous palaces,
> The solemn temples, the great globe itself,
> Yea, all which it inherit, shall dissolve;
> And, like the baseless fabric of a vision,
> Leave not a rack behind.

May 17th, 1883. R. G. D.

To the Editor of the *Mason College Magazine.*

Sir,—Shall I be accused of hypercriticism or of undue susceptibility ("*Qui s'excuse, s'accuse*") if I refer to the preface to Mr. Durrant's paper? Conscientious, humorous, and admirably suggestive though it was, the preface seemed to me somewhat to

Compound for sins he is inclined to,
By damning those he has no mind to.

Matter and force, we learn, the physicist may laudably reduce to common terms and identify; but between protoplasm and mind, he seemed to hint, between matter and life, there is a great gulf fixed. Great danger is threatened to the technical student who reduces thought to the normal and abnormal movements of phosphorised brain particles—that is (accepting Mr. Durrant's second demonstration) to the movement of immaterial vibrations—and who removes the landmark which his neighbour the physicist has been in the habit of regarding as immovably defining his territory.

Yet the interest of these advancing simplifications is very great, and each succeeding simplifier may assert, as fairly as his predecessor, that he does not "cheapen the universe, or detract one iota" from the cosmical dignity. Did he curtsey to X, Y, and Z, his bows to X and Y, Z being absorbed, would naturally be lower, whilst the salaam of the monist to X, when it has played to Y the part of Aaron's rod, is of surpassing profundity, and may really be said to lick the dust. Surely Cæsar is a more imposing tribunal than a nagging triumvirate. How then, if the monist appeals to Cæsar, or, to return to our symbols, says he could solve the whole problem of the universe if some kind friend would only just give him the value of X!

These simplifications are so easily effected when once you have started. Between the animal and vegetable kingdoms there is a "no-man's land," a Sutton Park of organisms—common grabbing-ground for botanists and zoologists. The philosopher therefore naturally puts together that which specialists can't keep asunder, and man begins with shame to find his poor relations in the cabbage-bed. Mind, observed in the highest and higher animals, is necessarily imputed to the lowest organisms, for no two people would draw the line in the same place. A quantum of rationality must be predicated even of unfranchised rustics, in spite of the wish of some to classify them according to units of stolidity.

In identifying "mind" (now concurrent with a portentously large share of matter) with this "matter," or, as Mr. Durrant would

say, with "vibrations," the monist's chief instrument is the law of concomitant variations. Exertion of mind is dependent on and largely commensurate with the heat (vibrations) retained by our clothes (vibrations), supplied by coal (vibrations), absorbed in fat and sugar (vibrations). Beer and tea (both vibrations) are seen to quicken the mind, and eventually perhaps to deteriorate it. If blood (vibrations) should be hindered from going to the brain (vibrations), if muscular exercise (vibrations) ceases, if rest and recreation (equilibrium of vibrations) do not take place periodically, mind is played out, coma follows, and, so far as we can judge from manifestations, mind is non-existent.

Is it surprising, then, that the monist, when asked to believe that the embryonic germ contains an unknown something over and above the vibrations which we call protoplasm, may say that, by parity of reasoning, every cup of tea should, over and above its sugar and cream, contain a reinforcement of mind, and that in each glass of beer there should be of the mysterious entity at least a fraction upon which Mr. Gladstone, were he a shade grander or a century older, might place an *ad valorem* tax?

But from these heresies an orthodox student like the undersigned is protected by loyalty to "first principles."

Yours faithfully,

AGNOSTIKOTATOS.

A SEMESTER IN A GERMAN UNIVERSITY.

Inasmuch as there are many wide differences between a girl's school life and a student's University life in Germany (even excluding, in my case at any rate, the preliminary inconveniences usually attending a sea-voyage, the sonorous osculatory salutations, and the unconscientious porter, though, I must confess, substituting an avaricious Custom-house officer, who attempted to confiscate a pair of new trousers), it seemed desirable to append a short description of German University routine.

Perhaps the most scientific mode of procedure would be to select a "type," and trace out its origin, development, and life history. It may be most interesting to select for the type a scientific English student; at the same time we have chosen an aberrant example which also only represents one class.

In order to commence student life, naturally the first ceremony is entrance into the University. I thought this would be a comparatively simple matter, but was sadly mistaken. In order to ascertain what formalities had to be gone through, I made my way

to the secretary's office, but, being unable to find the secretary or any other official, I addressed (in extremely bad German) a shabbily-attired old gentleman who was crossing the court. At first my enquiries had no very satisfactory results, for all the sarcastic German would say was "You speak *very* good German;" but subsequently he had compassion, and gave me all the information I required. A few days later, armed with a passport, I again journeyed to the secretary's sanctum; but this time it was suggested that I was too youthful to enter. However, I repudiated the idea, and was dismissed to obtain a certificate of competency. The day following I returned, equipped with a passport, the certificate of competency, and a "Mason's College Calendar." This time I met my former acquaintance, arrayed in his ancient garments, and under his superintendence I signed my name in what seemed to be an aged book-keeping volume, and promised to come again on the following Wednesday. On the Wednesday, punctual to the appointed hour, numerous other would-be students had assembled, and were already seated round the spacious hall. In a short time an under-secretary entered, and, seating himself at the main table, proceeded to call each student to pay his fee for matriculation. When this office was performed, the Rector of the University, accompanied by quite a concourse of officials, appeared; the Rector remained standing, and, when commanded, we all rose to listen to his rectorial address, which was delivered in a spasmodic style. Of this oration I understood very little, but as I frequently heard the word "science," I resolved to consider it learned and excellent. The Rector now commenced to call the students up one by one. On going up to the table each student was handed a number of papers (regulations, book-lists, &c.) by an under-secretary; he then was directed to a second official, who superintended the inscribing of names on the University roll; next he shook hands with the Rector, and received the matriculation certificate (on which, opposite to his name, was *vir præ nobilissimus!*) from a fourth official; while, finally, a fifth official signed several documents which had previously been given to the student. I proceeded very well through this formidable row of officials, except that when I had to sign my name on the University roll, a word occurred which I did not understand; but the Rector kindly came and informed me that I must write what the "condition" of my father was, the obvious answer to which would be "Quite well, thank you"—which answer, however, was not given.

The only remaining ceremonies after this entrance were paying

the "quæstor" and seeing the Professors, both of which were very simple duties.

A few days after matriculation I proceeded to the Physical Institute (the University buildings being made up of numerous separate "Institutes"), and found that the lecture theatre was not to be compared with our Mason's College lecture rooms. Being informed that I must procure a permanent seat from the Professor, I went to his own rooms, and was very kindly received by the venerable gentleman, and supplied with a place. I was much surprised that comparatively few students had arrived at the time at which the lecture was supposed to commence, but learnt that, in order to enable the audience to migrate from one University building to another, a quarter of a hour was allowed, and this quarter of an hour was termed the "academic quarter." A few minutes after my arrival there two students commenced to talk in a very friendly way, and to my surprise did not even smile at my atrocious German; thus I was soon at home. At a quarter past the named time the Professor entered the hall, laid his watch on the table (a very good precaution!) and with a bow and a "Meine Herren" began his discourse. A few minutes after the commencement of the lecture two students came in late, and the result was that most of the other students violently rubbed their feet upon the floor (an analogue to the disturbance produced by the vocal organs under similar circumstances in our own College, and hence an example of the same function being performed by entirely different parts of the body). The Professor took no notice whatever of the disturbance, but calmly continued his lecture. The lecture ended punctually, and the audience rapidly vanished, to form an audience elsewhere.

The other lectures were essentially repetitions of the one briefly described, excepting that in other lectures no permanent seat was appointed to each student.

The only building to which I will allude is the Chemical Institute. It possessed some half-dozen laboratories for students, several private laboratories, and a few private studies. The walls were truly ornamented by figures of the most eminent chemists; among others I noticed Priestley, Cavendish, Boyle, Davy, Dalton. Each laboratory accommodates from about thirty to forty students, and is presided over by a doctor. The Professor generally comes twice or three times each afternoon to each student, and asks the usual questions; in addition, the doctor is always open to questions from the students. With regard to the less scientific performances

in the "lab.," the students have the same wash-bottle fights, though often substituting for these a more scientific method—namely, of making an aperture in the lower tube, so that the operator, on blowing, receives a delicate spray of water into his visual organs and up his nasal orifices. But, in connection with the Chemical Institute, the most interesting part was the lecture theatre. On entering this room for the first time I was surprised to discover a facsimile of our Mason's College lecture hall. I rubbed my eyes, endeavoured to remember what I had imbibed that morning, and, finally, gave a despairing look for traces of lady students. As these last were not forthcoming, I sat down and rearranged my scattered faculties, and curiously eyed the model from which our Birmingham lecture theatres were taken.

Between lectures, the industrious students were to be seen rapidly making their way towards their respective lecture halls, and on meeting acquaintances there was a mutual doffing of hats, and perhaps an ejaculation of "Meal-time" (the notion, I suppose, being that students were always assimilating either intellectual or material pabulum).

In addition to the ordinary students, who attended lectures in normal apparel, and who, in the evening, might or might not attend "Kneipes" or non-duelling "Vereins," there were two other classes—viz., the "Verein" students and the "Corps" students. The former wore distinctive coloured caps; they likewise went to "Kneipes" of their own, and in addition, attended the duelling meetings, but were not obliged to accept challenges. The "Corps" students wore distinctive caps of various colours; they went to their own "Kneipes," and engaged in duels, being compelled to accept challenges or to leave the corps. There were about six of these corps, which were distinguished by the colours of their caps. Only members of the same corps walked together in twos or threes, the main body of the corps being accompanied by the corps dog. These students, as a rule, did very little work except fencing, which they diligently practised, and occupied much of their time in walking about with their faces ornamented (?) with scars, bandages, &c., &c. [For an account of a duel I can recommend Mark Twain's "Tramp Abroad," though, as I never saw a duel, I cannot vouch for its accuracy.]

As to the evening work, many students went to these "Kneipes." In the evening the students assemble and meet together for the purpose of drinking "lager-bier," smoking tobacco, and singing songs. In addition, occasionally papers are

read and discussed. Thus they have an analogue of the Union, in which tea and coffee are replaced by beer, eating, by smoking, and various small-talk by musical performances, while the discussions and papers correspond in both cases. The results of these Bacchanalian (no pun intended !) revels are often disastrous, taking into account that some individuals imbibe up to thirty glasses of beer. In fact, it seems part of the programme in every student's career to make one or two "spectacles" (as they candidly and amusingly term them). A "spectacle" is, in reality, a polite word signifying making a fool of oneself; for instance, knocking a policeman's hat off, putting the street lamps out, &c.

In addition to these external visible disturbances, there are certain internal molecular disturbances which apparently form a case of interference in brain-waves, and which take the form of a very disagreeable headache. Whether their cause is interference, I know their effect is interference with the amount of work done on the following day. This seems to be such a well-known result that it has been supplied with an especial name. The morning following my attendance at one of these meetings, as a matter of course, a student asked me, "Did you get a headache?" On my replying in the affirmative he seemed much amused, and laughed till I wished to induce some analagous molecular disturbances in his brain, but by means of a much shorter method.

During the whole of the semester the students were very kind, and when I departed their parting wishes were, "A pleasant voyage, a happy life, and learn to drink beer and smoke tobacco."

P. G.

OUR CONTEMPORARIES.

A batch lies before us to which we shall devote a little more space than usual.

Place aux dames! which must not be translated as an illiterate pseudo-Tichborne might render it—"Opportunity for rude criticism." The *Girton College Magazine* for March decidedly takes the lead in ladies' magazines, and if we had not scoldings before our eyes, heterogeneity is the term by which we should characterise its present stage of evolution. In some senses life is severe at Girton. The Tripos, Little-goes, Classical, Natural Science, and College Examinations are clouds which, big and small, necessitate much girding-up of the loins. Jurisprudence, and International Law are authoritatively stated to be the reverse of

dreary, enthusiasm over Maine's Ancient Law is never doubted, and Æschylus is mastered (should we say "mistressed?") not merely in the original, but even in Browning's translation or dialect. Lectures are attended on Plato and Martial, Aristotle, Pindar, and Justinian; in Mediæval, Italian, Economic, and Constitutional History, and on Psychology. "Psychology!" said a College dignitary, when asked to lend a lecture room for similar lectures. "You mean Cupid-and-Psychology." However that may be, if life is nothing but an empty dream, we must confess the illusion is solidly carried out at Girton. But by way of silver lining to the clouds, is there not the famous choir which never performs out of King's College Chapel, "still quiring to the young-eyed cherubim" of Girton? Are there not lawn-tennis matches with Newnham, in which, had it not been for Miss K. Dixon, the latter College would have been nowhere, and, as it was, was "scarcely anywhere?" Furthermore, there is a Fire Brigade, with an "alarm" practice, reminding one somewhat of the Princess and her "six hundred maidens clad in purest white;" a Choral Society, and a Debating Society. Was there not, too, a "Pancake Party," at which pancakes were made, tossed, and eaten? Has not, moreover, a mantelpiece "Monster Show" been held—an exercise in Nomenclature and Classification? We notice that under the head of "Ugly Monsters" Mrs. Grundy took a 1st prize, under "Pathetic Monsters" the Wooden Horse of Troy won by an head, whilst other classes were "Pretty," "Impertinent," and "Miscellaneous Monsters." Miss Scott's "Lord Randolph Churchill" attracted a good deal of attention. The fact that Girton has invented a new word, "polyclubbism," reminds us that intensely abstract words like this are only produced by highly-evolved societies.

After the last sprightly production, the *Cheltenham Ladies' College Magazine* strikes one as just a little "yawny." That the Principal is the editor will perhaps account for our not hearing of pancakes and china monsters; but, of course, there is more Browning criticism, and a feeling grows on us that Mason College is scarcely respectable without a Browning Society. At least, the editor might insert a dummy report or two; and not to miss conviction for want of detail, suppose we say that all the members know all "The Ring and the Book" by heart? Far the brightest contribution is an account of a South African concert trip of 420 miles, performed by seven ladies in an ox-wagon, to raise charitable funds. How they were surrounded by natives, how "de Engleesch Missees" fiddled in her dressing-gown, on the barren

veldt, with her music and lantern resting on a bush; how the tent nearly came down in the night; how the wild ostriches bolted the soap and tasted the sponge-bag during an *al fresco* toilette; how the people lent pianos, brought their chairs and paid 5s. for sitting on their own seats, seems to us eminently readable. But about the rest of the Magazine there is that "relish of salvation" which disconcerted Hamlet.

Laurel Leaves grow, we know, at the Edgbaston High School. A paper on Fashionable Follies led to an animated discussion on things in general and dress in particular, to reproduce which should ensure the fate of Actæon. Whether it is legitimate to go to a concert to see one's friends, the relative merits of peacock-blue and terra-cotta, the functions of stays, the possibility of men going down New Street in togas, are matters discussed with the utmost common sense and *sang-froid*. At another time Goethe and Schiller, in their relations to everybody and everything, are considered with considerable frankness and earnestness, but with some tendency to antithetic treatment. Neither they two, nor yet Shakespeare and Milton, dovetail into one another with the precision of scallop-shells. But the Magazine has already made its reputation by defining Parliament as the place where legislators go to talk about Birmingham.

The Haileyburian (May 26) has strong literary pretensions about it. Not the least interesting page is the Year's Index, to which all nations and languages contribute titles, Haileybury having in this respect special facilities. "On the strength of their delightful simplicity" the editor praiseworthily inserts five stanzas of an ode to "Morning," for three of which we must find space :—

> . . . . And women's tongues begin to prattle,
> And milk-carts o'er the city rattle.
> The costomunger's (*sic*) with their carts
> Traverse the city in its darkest parts,
> Awakening all who slumber still,
> To do their work, or good, or ill.

From the Far West an old pupil intimates that an emigrant's "life is not a happy one." His principal work is corn-husking—a good man will husk thirty or forty bushels a day; and he does not like cleaning pigsties and cowhouses. Another prodigal son, however, writes from Canada that "there are fifteen or sixteen English fellows round here in this neighbourhood; being out is the next best thing to life at an English public school." The College exchanges Magazines with twenty-two contemporaries.

The Eagle, at Bedford, dips into the future, and contemplates the Public Schools Race, A.D. 2000, for which the Girls' Schools enter. "Maggie Slater, the captain of the Modern Girls' Crew, had threatened to resign her post more than once, owing to the great difficulty she had in preventing her stroke from taking too much tea and muffins at four o'clock . . . The difficulties of the captains of the Boys' Crews were even greater, for every oar in the boat was deeply in love with one or other of the rival girls, and thus, when the competitors met in practice on the river, the rolling was fearful . . . Some, indeed, went so far as to say that the boys had promised to lose, on certain conditions; but this idea was indignantly repudiated by the ladies of the governing body of the Girls' Schools." Although the boys adopt blinkers at the last moment, feminine strategy proves too much for them.

Owens College (April) pursues its business-like career. A thoroughly honest paper discusses George Eliot and the religion of Positivism, and we commend the essay to the attention of the new section of the Natural History Society, which has been recently exploring the home surroundings of our great Midland author. The critic seems unnecessarily frightened as to the tendency of her writings, but, on the whole, does justice to Positivism. He quotes a beautiful passage from her poem "Stradivarius:"

> . . . . 'Tis God gives skill,
> But not without men's hands. He could not make
> Antonio Stradivari's violins
> Without Antonio."

Another somewhat deep paper contrasts Kant's and Spencer's doctrines of space and time, to the seeming disadvantage of the latter writer. The paper manifests some Scotch predilections in favour of the Scotch-Teutonic philosopher, and has appropriate Scotch idioms. We were glad to notice songs, recitations, and instrumental music at the social meeting.

It does seem to us highly desirable that our Union should be allowed an opportunity of placing the collected Magazines on a shelf for general reference. It is to emulation that races, individuals, and colleges alike owe all the dignity and wealth that they possess. Little, however, can be done in this direction while the College has no real common room.

W. G.

THE UNION.

May 18th.—Mr. CULLIS in the chair. The meeting was well attended, and we were pleased to notice the presence of Mrs. Arber, Mrs. Smith, Mrs. Hillhouse, Dr. Tilden, and Professors Hill, Lapworth, and Hillhouse.

There was no business to be transacted, so the Chairman called upon Miss GERTRUDE DALE to read her paper on "The Teaching of Geography." At the conclusion of the paper Dr. TILDEN made a few kindly remarks, and expressed his satisfaction at the fact that improved methods of teaching were gradually being adopted. Professor HILLHOUSE said that he agreed with the principles advocated in the paper. He suggested that dough might be substituted for clay in map-modelling, it being a cleaner material, and more easy to preserve for any length of time. Mr. GREATHEED and Mr. BLAKE made a few remarks upon the paper, and as several of the students expressed a wish to see it in the *Magazine*, no abstract will be given of it this month.

Mr. DURRANT then read a paper on "Vibrations." The paper was received with great interest, but was of rather too technical a character to elicit many remarks. Miss EVANS said that she would very much like to have an opportunity of reading Mr. Durrant's article, and her wish being warmly applauded by the audience, and seconded by the Chairman, Mr. Durrant kindly handed over his M.S. to the Editor.

On *June 2nd*, owing to the great kindness of Miss Osler, the members of the Union were invited to a Garden Party at Miss Osler's house in Harborne Road.

Those of us who were able to accept Miss Osler's invitation arrived about five o'clock, and were received by our hostess on the terrace, where we were refreshed with tea and coffee.

After preliminary talking and strolls round the beautiful grounds, the more energetic of us started a game of rounders, somewhat, we fear, to the detriment of the lawn. Both professors and students were most active in this and other games.

Towards the middle of the afternoon some of us were honoured by an invitation from Dr. Tilden to group ourselves on the terrace, to be photographed by him. Never did a photographer have a more smiling and talkative group; never did a group have a more encouraging and complimentary photographer. To be told that you look charming just when the operator is about to uncover his camera, is far more likely to produce a successful photograph than to be implored to put on a pleasant smile. We believe that the students will be able to buy these photographs. When the

photographer had concluded operations we began with renewed vigour to play more games, such as French tick, hide and seek, &c., and we played on till we were obliged to admit that it was time for us to leave.

Miss Osler, with her usual kind thoughtfulness, had refreshments ready for us, and after we had done full justice to them we strolled into the conservatory and fernery. We walked about, looking at the flowers and talking, for some time, till we found that it was considerably after eight o'clock, which was the time at which we were supposed to leave. Being afraid that Miss Osler would feel obliged to treat us in the way that one is often obliged to adopt to get rid of the children on the occasion of a Sunday School treat, we reluctantly said "Good-bye" to our kind hostess. We must again thank Miss Osler for the very pleasant afternoon we spent, and assure her that her visitors most thoroughly appreciated her kindness.

June 1st.—The CHAIRMAN read out the subjects suggested for debate—*That ignorance is bliss; That this house believes in ghosts; That it is not always desirable to speak the truth; That compulsory vaccination should be abolished; That capital punishment should be abolished; That the practice of smoking should not be confined to men.* He then asked Mrs. Tilden to select a paper containing the subject for debate, and would remind the members that their names would be chosen by ballot, that each member must rise when his name was called out, and speak for three minutes, taking the opposite side to that taken by the preceding speaker.—Mrs. TILDEN then chose a paper upon which was found to be written, "That compulsory vaccination be abolished." This being received with prolonged hisses, Mrs. Tilden chose another, "That this house believes in ghosts," which was accepted with considerable laughter.—The CHAIRMAN then proceeded to ballot for speakers, and Miss C. E. BODINGTON was called upon to open the debate in the affirmative. Miss Bodington remaining silent, the house applauded her vigorously; Miss Bodington still remaining silent, Mr. JENKYN-BROWN, who appeared to be affected by the ludicrousness of the situation, got up and asked the Chairman what a ghost was.—Mr. CULLIS then asked Mr. Jenkyn-Brown to open the debate on the negative side—(applause)—in order to give Miss Bodington a little time.—Mr. JENKYN-BROWN declined, but finally rose in response to the cheers that followed the Chairman's request. He said he was an ill-used man—(laughter)—and then went on to relate his grievances; how he had only learned at tea-time that he was to speak, and how the Chairman had left him in the dark as to what a ghost was. He would accept Johnson's definition—"a shadowy being." This being the case, the existence of ghosts was undeniable. They were always seen at night, and especially after a good supper. He had seen many himself, and plenty of others had done the same.—Miss BODINGTON made

a few remarks, and was followed by Miss STURGE. She gave instances of people having seen ghosts, and quoted the well-known anecdote of Lord Brougham.—Mr. OGLE, who sat in the back seats, concluded, from what he could see of the members' heads and hats from behind, that the house did not believe in ghosts, and said that the question to be considered was not whether ghosts existed, but whether this house believed in them.—Professor HILLHOUSE told a long and exciting story of a friend of his who had once seen a ghost, and described the effects on his friend's umbrella.—Professor SONNENSCHEIN said that it was impossible to be brilliant on compulsion, and thought that under the circumstances it was open to any member to move an adjournment.—Mr. BARRATT, in a very forcible speech, said that very few arguments had been given on either side. Those who believed in ghosts had not given satisfactory evidence of their existence. They had merely given isolated examples, in which particular persons said they had seen a ghost. He referred to the investigations of the Psychical Society, and said that of course much more reliance must be placed upon the accounts of such men as Professor Barrett (of Dublin), Professor Crooks, and Professor Morgan. However, he had never seen a ghost himself. Once or twice he thought he had seen one, but, on investigation, he found he was mistaken. On one occasion, when he came downstairs in the dead of the night, he did see a ghost on the opposite wall. As he was laden with a kettle he walked off, keeping his eyes fixed on the ghost; and, having got rid of his kettle, returned armed with a poker, so that in case of assault he might be ready. There was the ghost again: he went up to it, and found that a fire had been left in the grate of the room, and was making a shadow on the wall just like that of a human figure.—Mr. COOPER made a short speech, and resumed his seat in an emphatic manner.—Mr. BLAKE said that the existence of ghosts was contrary to all known physical laws.—Miss RUBERY said that anyone who had seen the picture of the Grey Lady, by Mr. Millais, could not help believing in ghosts, for she (the grey lady) looked so nice.—Mr. CULLIS said he had once bought a haunted house. He waited one night under a hedge with a naked sword, and as soon as the ghosts came he advanced: they all ran away, and he discovered they were sheep.—Mr. A. E. BODINGTON spoke for seven minutes. He ought to have spoken on the negative, but seemed to forget this, until he received a reminder from the Chairman. He described the entertainment of Messrs. Maskelyne and Cook, and was about to adduce an argument for the affirmative, but recollecting himself he drew an argument for the opposite side. —Mr. Ledsam, Mr. H. Johnson, Miss Clarke, Miss Moore, Mr. Jordan, Miss Brooks, Mr. Greatheed, Mr. Carter, Mr. Eliot, and Miss Evans also spoke. Altogether there were twenty-one speakers, and the debate lasted eighty minutes. On the whole there was a

feeling that the debate was rather a farce. Much amusement was caused by the difficulty experienced by speakers in remembering what side they were to speak on.

[We regret that we have not been able to give a better report of this debate, and we must ask members whose speeches have been ill-reported or unreported to accept our apologies. The fact is that although we despatched a reporter to the meeting, entrusted with the duty of reporting the speeches, our representative was panic-stricken on learning that any person in the room was liable to be called upon to speak. Our reporter, therefore, was contented with a partial performance of duty, and having drank tea and eaten cake, retired, leaving the debate to report itself, which unfortunately it did not do.—ED. *M. C. M.*]

SIR JOSIAH MASON'S BIRTHPLACE.

Many of our readers are no doubt aware that the house in which the founder of our college was born has just been sold, and that the authorities of the town of Kidderminster are about to pull it down for street improvements. When one sees it, one wonders how a man could find sufficient air to feed his active frame in such a place. But a short time has elapsed since "Joe" as he was familiarly called, might have been seen walking about the streets of his native town selling cakes, which he carried about in a basket, kept neat and tidy for him by his mother. But in that short time a very great change has taken place. Our hero, when a boy, occupied the position of a hawker in a town which certainly is not the cleanest in the country; at his death he occupied that of the founder of a College and an Orphanage, and a benefactor to his country. His birthplace is situated in Mill Street, the upper part of which is now called Josiah Mason Street in honour of the event. Walking up this street we see, on the left-hand side of the road, five houses, one of which is considerably higher than the other four. Three of these were occupied by Mason's parents—one as a place of abode, another as a shop, and a third as a bake-house. It was in the highest of these houses that our founder was born on the 23rd of February, in the year 1795.

Since this house is the one with which we are immediately concerned, let us direct our attention to it. The door leading into the street is constructed in two parts, just as stable doors are usually constructed, so that the bottom half can be closed while the top remains open. Entering this we find ourselves in a small space about three feet square, which plays the part of an entrance hall. The right-hand corner of this square is cut off by means of a door, which leads into the only downstairs room. This room is much longer than it is broad, and about seven feet high. Immediately opposite this door stands, even to this day, an old-fashioned triangular oak cupboard, which was the property of Mason's parents. At the opposite end of the room is another door, leading into a dark scullery. Here the staircase is placed, which is very narrow and steep, and extremely dark. On its right-hand side is to be

seen a wooden bar, placed there to help Mason's lame mother upstairs. This bar is still used, for the present occupier of the house has but one leg. On the first landing there are two rooms, one of which is much larger than the other. It was in the larger room that Sir Josiah Mason was born. It is lighted by a window about two feet high and eighteen inches wide. This window looks out upon the road, beyond which are a number of gardens ranged together and forming a large open space, while the chimney-stacks dotted about in every direction lend an enchantment to the view which must be seen to be appreciated. A door-way which is now blocked up led from this landing into the garden—rather an unusual circumstance to have a garden on the same level as a bed-room! Another staircase, placed opposite the garden door, leads to the third storey, which also contains two rooms. Here nothing of interest presents itself unless it is the dilapidated state of the place and its surroundings, which makes one think that the authorities have not decided to pull it down before it needed it.

ARTHUR J. COOPER.

A NOCTURNE.

We use an artificial light
To lengthen out our days,
And sit up reading half the night
By lamp or candle rays.

The poet has to go outside
For his nocturnal muse;
But in the streets can scarce abide
The urchins yelling news.

He seeks a more sequestered spot
To pen his soul's outpouring;
A bull's-eye lantern hath he got
To see the page he's scoring.

'Twas thus I hoped to be inspired
To sing of Night's attraction;
But found my bull's-eye light required
A trifle more refraction.

A policeman on his wonted beat
Stole softly up behind me,
And kicking me from off my seat,
Proceeded then to bind me.

In vain I asked him by what right
He broke my meditation;
He only answered—"Dynamite,"
And took me to the "station."

That night I spent in prison cell—
Alas! my thoughts were blighted;
I could not write, nor could I tell
If I were I—or Whitehead.

But still I try to sing my song
To Night—the Sleeper's Mother;
I hear a cat! it makes me long——
Oh Lord! I hear another.

A jug of water has been spent—
I guess I dropped it on it;
And now sweet Night, will't be content
With one poor little sonnet?

SONNET.

Ah, swarthy one, born every eve anew,
Yet ever living where the Sun is dead;
To us thou comest, weeping drops of dew
When stars are twinkling far off overhead.

No smile was ever seen upon thy face,
But sweet serenity is often there;
How changèd is the aspect of the place,
When thou art strangely come in stillest air.

And could I follow whether thou will't go,
Perchance not seeing much, but feeling more,
The slumber of the world 'twere mine to know,
The hushed wind murmuring by sea and shore.

So round the world with thee, immortal Night—
Then stay, and find thy track is bathed in light.

R. S. V. P.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Dear Sir,—At the debate on "Ghosts," this evening, much was vaguely said about the scientific point of view, which we were told absolutely negatived the possibility of any belief in ghosts. Perhaps I may be permitted to quote a few words from the *Spectator*, which deal rather aptly with this argument.

"The most advanced conclusions with regard to the laws of light and sound go to show the possibility of innumerable sights and sounds around us which may be invisible and inaudible because we have no organs sufficiently delicate to appreciate them. To put an arbitrary limit to these discoveries, and to declare dogmatically that science has reached the end of its tether, is the mark, *not of a scientific, but of an unscientific mind.*" In the words of

Sir John Herschel: "*Occurrences which, according to received opinions, ought not to happen, are the very facts which serve as clues to new discoveries.*"

I am, yours, etc.,

M. D. STURGE.

June 1st.

To the Editor of the *Mason College Magazine.*

Sir,—The advantage of using the big words of which Miss Lillie Dale justly complains are as follows:—

1. A cheap reputation for wisdom may be thereby procured. In a world "mostly fools" this must be a great advantage. Only the really wise may in safety lisp in words of one syllable. Only a Duke of Wellington can walk about in a seedy coat.

2. If the writer should happen to re-read his article, he is inspired to find out what the words really mean.

3. If he chances to have used them rightly, the saving of space is enormous.

A well-advised avalanche, instead of wasting its "potential energy," or energy of position, by aimlessly tumbling about, would put itself into harness, raise timber for chalets, carve out roads and tunnels. But even when in the valley the misguided avalanche can make amends, for it has acquired, by the velocity of its descent, heat, or "kinetic energy," which might be set to work a steam engine. I suppose a hot avalanche might be seen in any scientific collection.

"Microphonic" wailing means "small-voiced." Is it not but yesterday that telephones and microphones were exhibited at every conversazione?

"Senile atrophy" is Johnsonese or Queen's College for the wasting of the aged.

"The merry apes" were never intended either to smile or to weave. There were no apes in those days. The undertaker's work was all done gratis by the merry *ages*.

Other misprints (for all of which the writer is solely responsible), omitting the minor ones, are: page 88, "predominance of man," instead of predominance of brain; and at page 129, Gibbon is represented as *signing* as a lover. Whether under his hand and seal he executed a solemn deed of release of the lady, I do not know, but his own words merely state that he "Sighed as a lover, obeyed as a son."

Yours faithfully,

W. GREATHEED.

Mason College, 2nd June, 1883.

To the Editor of the *Mason College Magazine.*

Sir,—'Agnostikotatos' kindly showed me his letter (bearing on my paper) before it saw the light of immortality in your columns. If you will not regard it as old-womanish, I should like to have the last word. I think he rather misunderstands my meaning when he says: "He seemed to hint that between protoplasm and mind, between matter and life, there is a great gulf fixed." I fully allow that protoplasm is a factor of mind, and that what we call matter is intimately connected with life; my point was rather—that, granted you have dissected the mind and materialised the life, you should not jump to the conclusion that you have got to the bottom of the one or the other.

I must own that the latter part of the letter passes the bounds of my poor reasoning. From what I gather—but I may be entirely wrong—I am a monist, and, consequently, am expected to bow gracefully to some of the letters of the alphabet, more particularly to X, who remains when the others have gone, and with whom, as a gentleman of "unknown value," it is well to be on good terms.

I hope I shall not be "classified according to the units of stolidity" when I fail to see that, because the exertion of mind is largely dependent on creative comforts, such as tea (which, I may remark, should not vibrate too freely, else it passes the bounds of its natural environment—the cup), that, therefore, when these supports are absent the mind ceases to exist. Of course I grant that if you take away all its nourishment, the mind, like the body, is liable to starve, and I trust my paper does not convey a contrary insinuation.

Hoping, then, that I shall not be regarded in the questionable light of an heretical monist by all your readers,

Believe me, &c.,

REGINALD G. DURRANT.

Mason College, June 2nd, 1883.

COLLEGE WORK.

CHEMICAL LABORATORY.

The good attendance previously noted in this department is still maintained, the number of students working in the laboratory being seventy-one. The attendance at the lectures is, however, rather below than above the usual average. Some of the more advanced students are engaged upon organic analyses, analysis of pig-iron, and the dry assay of silver. The majority are, however, working at qualitative analysis.

J. TURNER.

GEOLOGICAL DEPARTMENT.

On Saturday, April 28th, the first excursion for the season was made. A party of sixteen hammerers started at mid-day for Wolverhampton, where they examined an exposure of glacial deposits in some brick-pits on the outskirts of the town. They then drove to Seisdon, where a large number of fine boulders were examined. After tea they started homewards, driving through Wightwick, where the escarpment of the Keuper was well seen on the left, and a little farther on, to the right, a good section of the Upper Bunter Sands was passed.

On Saturday, May 5th, half of the party started by early train to the Lickey Hills, where the Old Rocks and overlying Lickey Quartzites were mapped. Proceeding to Rubery, the unconformity of the Pentamerus Sandstone with the Quartzite was recorded. At Northfield the other portion of the party was joined, and in company they proceeded to a section in the Permian Breccias: the same breccia was also seen capping the summit of Frankley Hill. The party then proceeded to Rubery, where the rocks which had been seen to compose the breccia were exposed *in situ*, confirming the view of Professor Jukes that the angular blocks of which the Permian breccia is composed, are of local origin, in opposition to the view of Professor Ramsay, that they are brought from Wales and the north-west by the agency of the glaciers.

On May 19th, the party, which included some ladies, proceeded to Harbury, a station beyond Leamington. On the hill to the west of the station, the thin band of White Lias, which dipped beneath their feet, was seen as it rose to the surface in the railway cutting. Proceeding to the cutting on the station side of the hill, the party inspected the Lower Lias clay, and there accumulated numerous specimens of Ammonites, Gryphœa incurva, Ostrea, Rhynconella, and fragments of Enchonite and Echinus. After tea, some of the party walked a mile or two down the line to the quarry, the clear face of which very satisfactorily displayed the thin alternations of limestone and shale peculiarly characteristic of the Lower Lias.

On the 26th, the Professor, with a number of his engineering students, started soon after eight o'clock; going by train and tram to Wolverhampton and Tettenhall, where they investigated various

sections of the Upper and Lower Tras. Then, by a great rush, the train was caught, and a second party met, as arranged, in the park at Sutton Coldfield; but here the engineers departed to engage in a study of the laws of motion, by the repetition of sundry experiments collectively known as lawn tennis.

The Professor returned with the other party to the well-known quarries in the park, where the pebble beds are so well seen. Then a long walk brought them to the excavations for the new railway to Lichfield. The new line was followed for a couple of miles, the pebble beds persisting all the way, everywhere capped by the drift, which in one of the cuttings presented an excellent example of the tumultuous contortions due to the kneading action of the ice.

A huge steam excavator, gnawing away a pebble cliff nearly thirty feet high, was good enough to continue working ten minutes after he was reached; and then an urgent demand for tea was, with some little difficulty, satisfied. An unsuccessful attempt to find a narrow neck of Permian ground, which, according to the map, occurs on the line of the railway, brought the day's explorations to a close.

BOTANICAL DEPARTMENT.

One day early in the present year a busy workman was found in the biological corridor cutting an opening in the outer wall of the College. It presently appeared that this desecration was rendered necessary by the impossibility of providing a Botanical Laboratory within the building. A door-way at this place now leads into what was formerly a tier of jeweller's shopping. But if the door be softly opened on any working morning a pleasant transformation will be witnessed. Down the middle of a long bright cheerful room a line of tables has been placed, each carrying a microscope and other apparatus, and seated on stools behind the tables a score of students are busily examining some interesting section delicately cut by Professor Hillhouse.

Ample passage-room remains on either side the range of tables, and here the Professor passes up and down, ever and anon stopping to cheer some despairing one, who is shown in a couple of seconds what has been vainly sought for unaided.

Anyone wishing to commence the study of Natural Science, and not having a medical or other definite course before him, could not do better than begin by taking this course on Elementary Botany, with its practical demonstrations of actual facts. In this, and the similar course on Elementary Biology by Professor Bridge, the young student of nature finds himself in fullest accord with the newest and truest development of modern views of education.

It will be pleasant to all who know Professor Hillhouse to learn that in future he will be with us through the whole session.

F. J. C.

NOTICES.

MR. RILEY.—We are sorry to have to record the departure of Mr. Riley from Mason College, but we are sure that all the students who worked under him here will join us in congratulating him on his appointment as Lecturer on Mathematics and Mechanics at the Bradford Technical College.

The next number of the *Magazine* will be published on October 15th.

Summer Term ends on Friday, the 22nd of June, the Examinations commencing on the following day and terminating on Saturday, June 30th.

Printed copies of the Syllabus of the Day Classes for next Session are now ready, and may be had on application at the office, price 3d.

We regret that in our last issue the names of those Students who had passed the Primary Examination of the College of Surgeons appeared under the heading "Preliminary Examination of the College of Surgeons." We have been furnished with a complete list this month, which appears below.

PRIMARY EXAMINATION OF THE COLLEGE OF SURGEONS.

Barratt, J. O. W. (B.Sc.)	Hall, G. C.
Berrill, A.	Harrison, S. H.
Barwise, S.	Hill, A. W.
Emery, F. W.	Moxon, A.
Featherstone, W. B.	Oldacus, E. E.
Fitch, C. D.	Taylor, A. L.
Gardner, F. G.	

UNIVERSITY OF LONDON PROVINCIAL EXAMINATIONS.

Matriculation at Queen's College commences Monday, June 18.

Intermediate Arts and Science and Prel. Sci. (M.B.) at Mason College, commencing Monday, July 16.

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Vol. I. PRICE SIXPENCE. No. 7.

THE Mason College Magazine

EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

OCTOBER, 1883.

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"JOURNAL" WORKS, TYP.

OCTOBER, 1883.

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NOVEMBER.

Thursday,	1.—B.Sc. Examination.	
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NOTICE.

The Magazine will be published every Month, except July, August, and September.

It will be published at Cornish Brothers, 37, New Street, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 4s 6d to post free.

Subscribers are requested to give in their names at once to the Editor, or to any Member of the Union Committee.

Subscriptions to be paid (by Postal Order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 7, Vol. I. OCTOBER, 1883. Price 6d.

EDITORIAL.

A new year, a new home, a new stage of any kind in life's history, is rarely greeted with unmingled pleasure. Even when there is much to welcome, there is usually much also to regret; and the brightest promises for the future have a bad habit of looking somewhat dim and phantasmal beside the actual experience of the past. The opening of the present Session forms, so far as we are concerned, no exception to this rule, since the literary interests of the College have lost an ally whose able and zealous care has entitled her to be named the good genius of this Magazine.

Still we feel that there are strong reasons for hope. Now that the first spark has been kindled, we may expect abundant aid in fanning and feeding our flame. Surely there can be no lack of smouldering fuel in the minds of Science students, which only needs to be stirred up well, and exposed to the oxygen of intellectual ambition. If some of the fuel should still be in a state of blackness and coldness, may it be our happy lot to light the fire from which we hope in time to replenish the general hearth!

We shall endeavour to maintain the character of the Magazine; to render it increasingly representative of College thought, feeling, and action; and to admit lighter and graver matter in due proportion, never making one number as heavy as lead, and the next of the specific gravity of hydrogen gas. But we cannot too earnestly impress upon our readers that this devoutly-to-be-wished consummation depends in great measure on themselves. The balance may be just, but what if the scales are empty? There is a popular opinion that the powers that be, whether they preside over states, towns, churches, or only ever "periodicals," possess some kind of supernatural influence. Whatever goes wrong in connection with their department, even though it be out of the range of merely human agency, is ascribed to their sins of omission or commission.

Now, for anything we know, this view may in some cases be well founded. We are willing to suppose that the Government of the day exerts some occult control over the weather, and is not wholly irresponsible for sharp frosts and bad harvests. It is so pleasant to be able to lay blame on some personal offender instead of on impersonal laws, that life would be shorn of half its solace were this illusion dispelled.

But we are quite certain, even from our own limited experience, that an editor is a mere mortal. Everything that Midas touched turned into gold, and some people seem to think that everything an editor touches ought to turn into genius. But this is unfortunately not the case. He cannot supply his contributors with wealth of thought, or fluency of expression. He may be able to winnow the grain, but he cannot create wheat out of chaff.

We should be very glad to patent a new kind of retort for distilling the wit and wisdom which doubtless lie latent in collegiate minds; but our inventive power is not equal to the task, and we must wait till some sage professor or aspiring student comes to our aid. Perhaps, when the cerebral foci of the different mental faculties are exactly localised, it will be possible to arouse each in turn to activity by the application of electric and other stimuli. We shall be able to evolve a philosophical, scientific, or historical dissertation from any sufficiently stocked brain; or, if the brain be insufficiently stocked, a strong stimulus applied to the poetic centres may supply the deficiency, and yield some delightful product of the physical or metaphysical imagination.

Or perhaps the literature of the future will be ground out by machinery. If, indeed, a machine could be constructed warranted to play every possible tune of thought, with every possible variation of style, we should have a new labour-saving apparatus which would throw another set of craftsmen out of employment. There would be nothing for the authors to do. But as they constitute a small percentage of the population, probably the general gain would far outweigh the individual loss. It is certainly strange that so much has been done to help the hands, and so little to help the brain.

Until one of these desirable inventions is patented, editors will be forced to rely on the tender mercies of their contributors and the indulgence of their readers.

We should indeed be ungrateful did we fail to recognise the loyal and efficient support which has thus far maintained the life of our Magazine. But gratitude has been defined as a "lively sense

of favours to come," and though this is by no means an exhaustive definition, still it indicates an aspect of human and editorial feeling not to be overlooked. We are therefore prospectively, as well as retrospectively, grateful, and tender in advance our cordial thanks for aid and sympathy not yet received. No doubt it is all put out at good interest, and will in due time yield a noble income.

Our confidence is based on a good foundation, for it is generally stated and believed that every mind contains material for one good book. No matter how narrow the experience, how mediocre the faculties, their sincere and succinct utterance will always be more or less interesting. In the depths of every character there is some pure original gold, though we must often dig a long way before it appears. Now, if a man can write a good book, it follows perforce that he can write at least half-a-dozen good essays without exhausting his vein. But we are quite willing, for argument's sake, only to credit every alternate man with such power of production. So that, taking half the number of students at present attending classes, and multiplying the moiety by six, we shall obtain an approximate estimate of the literary potentiality of the College, stated in terms of Magazine articles. Statistics are proverbially pliant, and we do not therefore lay much stress on these calculations, but shall welcome experimental proof of their correctness. We promise to meet with calm courage the torrent of intellectual riches which will thus pour into our devoted minds, even though we perish in the attempt to direct the course of the golden flood. At present we feel able to face the danger with perfect equanimity.

Suppose that everyone were deliberately to set himself to write down his best thoughts—not at first for publication, but for his own use; not the thoughts which have been outwardly applied by parents and Professors, but those which are growths of his life, and form its flowers and fruit. The result might be salutary, though in many cases it would not minister to self-satisfaction. Principles might come to light which were acted upon every day and every hour, but never before candidly expressed. The proper functions of reason and memory, the object of attending classes at a science college, the aim and end of education in general, would appear in new and somewhat startling colours. We should all be the better for putting into words our tacit creed. Such confessions of faith must often be of private interpretation, and unsuited to exoteric pages; but the habit of expressing real thoughts in unaffected language would tend to ameliorate the thoughts themselves, and to

form a style which might serve as a sensitive medium for more complex mental vibrations. Hence even the moiety who are at present able only to consume would have an ultimate chance of becoming members of the productive class.

But many of us have ideas which should not be condemned to solitary confinement in a diary. They would have ventured out long ago, and taken their places in society, if we had given them clothes to wear. Naturally, they are ashamed to appear in coarse rags and tatters, patched with pieces of stolen silk and velvet. They demand a neat and new attire, suitable to their station. Shall we tell them that we cannot afford it; that they must be content to stay at home, or to walk abroad in their haphazard costume? At the price of a little care and study, a respectable outfit might be provided for these children of the brain, so that they could show themselves without fear, make friends, correct bad habits, learn good manners, and perhaps take a high place as citizens of the Republic of Mind. Surely it is stingy to refuse this boon; it is penny wise and pound foolish. For ideas are merchants, who save labour in the end by establishing commerce along the line of least resistance.

No student of Science should neglect to practise composition. It may be true that sound sense will recommend itself without aid from style, just as superlative beauty will be admired without artificial adornment. But the beauty must not be veiled and muffled like a Mahometan lady, nor must the sound sense be disguised in a tissue of ambiguous language. The art of writing plainly is by no means an easy one, and the figurative style usually comes earlier in the course of individual as well as of national development. There are, indeed, persons who sit down at a mature age and in cold blood to write poetry, which usually meets the approbation of the critical journals, and is described as "scholarly," and "of finished workmanship;" but such authors are evidently examples of self-arrested development. Poetry comes by nature, prose by culture. Exact expression demands exact conception, and this can be attained only by strenuous effort; while confusion of creed may easily be concealed under the charitable cloak of metaphor, which hides a multitude of sins. Metaphor remains invaluable, even to the rigorous thinker; but it must always be the vesture, and not the substance of an argument. It is well to strip our finest passage of its rhetoric, and to see whether it is merely an exceptionally presentable rag-doll, or whether there is a living body under the parti-coloured dress. In the latter case we may re-cloth e

it, and display it to the public with a clear conscience. Eloquence must always be reduced to its simplest terms before its contents can be admitted to the mind. We are haunted by innumerable phantoms simulating thoughts, which can be exorcised only by a spell of plain words. It is true that every branch of philosophy, science, and art must necessarily use its own terminology, which to the uninitiated appears a jargon; but any word may be called plain which is appropriated by the common consent of experts to a single definite idea.

Such considerations should have due weight with supporters of a magazine which seeks to represent and to influence the life and intelligence of the Mason Science College. The studies here pursued are those which are gradually changing the practical and theoretical standpoint of mankind, so that we, as a body, are peculiarly well situated for the reception and radiation of new light. The busy community among which we live is beginning to be active in other spheres than the commercial and political, and is not so overgrown that messages from a nerve-centre need be very long in reaching the extremities. In time we may constitute ourselves into such a centre, the crowning product of civic evolution.

But duties keep step with privileges. Greater responsibilities are imposed upon us than upon members of older societies, which have already settled down into a definite crystalline form. They have to *maintain* worthy traditions; we have to *make* them. And this should be no overwhelmingly difficult task. There ought to be sufficient public spirit among students to generate the desire and resolve that their literary organ should be the best of its class, yielding to none of its contemporaries either in matter or in style. Let us enter into a generous rivalry with other Colleges; let us try to learn all that their example can teach, and to equal and surpass them in thought, in expression, in achievement.

Besides, there are other, and, as many will doubtless think, more practical motives for the acquisition of the art of writing easily and clearly. In examinations, many candidates fail, or take a low place, from their inability to pour out the knowledge which their studies have poured in: they cannot uncork and decant their science. The same holds good all through life. The man who can make people understand what he means will be much better off in the long run than another, who, like Hegel, is understood only by one disciple, and misunderstood even by him. Exposition clarifies thought and prepares the way for action.

If any of us aspire, not only to work our way in the world usefully and successfully, but to bring down Truth from her heights, and to popularise conceptions, which at present appear too ethereal and remote for the common gaze, perfect transparency of language will be found absolutely essential. Otherwise we might as well write in a foreign tongue, and expect our readers to take the trouble of learning it in order to enjoy our lucubrations.

A career resulting in tangible and ponderable success, or in that glory which cannot be expressed in pounds, shillings, and pence, may possibly have so apparently unimportant a beginning as the contribution of an article to a College Magazine; and if so, why not to ours?

TRUTH.

Judging from a frequently-quoted passage in his Essays, Lord Bacon seems to have been of the opinion that Pontius Pilate only needed a little patience to have received a full and final definition of our subject. But even had the definition been given, the experience of eighteen centuries would probably have strained to the utmost the miserably inadequate symbols by which the class *Primates* have to communicate their opinions to one another, and it is quite possible that the logicians and philosophers of to-day would, not less than at present, have been able to enjoy the intense feeling which comes of demonstrating to their own satisfaction the entire and hopeless ignorance and wrongness of all contemporaries.

We, at any rate, the definition not having been given, are free to deal with the subject, and to deal with it, moreover, in our own way. The ocean of Truth belongs, in the first instance, we are willing to cede, to ponderous and inartistic ironclads, by which figure we may perhaps indicate the solidities of the learned writers and weighty communications to scientific societies; in the second instance it belongs to humdrum merchant vessels and colliers, which allusions may serve to suggest serious and heavy journalism of business life; and, lastly, the unwieldy mass of casual and comic literature may claim, like Leviathan, to take its pastime in the element which oftentimes gets befouled and muddied by its pranks. But no reasonable person can object to our playing on the seashore and making paper fleets. Children's performances are for some more attractive than a Dreadnought, more picturesque than a steam-tug, and quite as interesting as the sea serpent, to which a person of sense does not pay very much attention. Perhaps in

their dabbling enthusiasm they are apt to forget some conventional proprieties, but the true artist will encourage suggestions of Eden. The sand-piled towers, the gorgeous palaces, are swept away by the first ripple; but they have served their turn in browning the cheek and in hardening the muscles.

Truth is most palpably divided into two kinds: there is one quality for youngsters, and another for grown-up people. For youngsters the prescribed article is of the most severe quality. It is the cheap domestic policeman, or scarecrow, to keep boys away from jam-pots and game preserves, to save masters the trouble of hearing the whole lesson, and to enable house-masters to control a larger number than they can properly manage. A threat-acquired and cane-manufactured habit of truthfulness saves Mr. Squeers the cost of an additional usher, and it will, at the same time, supply to Mr. Squeers's soul the sweet unction that virtue is so much in his debt that he may in the account very safely set off economy to the injury of the health of his charges. There is only one schoolmaster or parent in fifty who has seized the truth in Mr. Spencer's remark, that children are born bad rather than good, only by slow degrees to attain the morality of the mature. The history of the individual repeats the history of the race, and cave morality cannot have been very intense. The tadpole breathes water and has a tail, but nobody doubts his developing into a frog. The larval butterfly crawls and eats cabbage leaves, but these processes in no way negative its ultimate spirituality. The boy who does not lie to his fellows is generally the one with stout fists, and, as regards masters, the intellectually sharp youth is seldom in such a difficulty with his work that he is obliged to invent an excuse. But in spite of Dr. Arnold, the average code of honour among boys includes a *quantum suff.* of lies. A lad who lies far beyond the average is usually one who has been placed in an unsuitable environment, and the best thing for him is the high seas or the backwoods of Canada.

When, however, we come to years of discretion, when the make-believe world of the school, ay, and the make-believe world of the university are exchanged for the world of landlords and tenants, of lawyers and stockbrokers, of politicians and writers and merchants, it generally happens that a new meaning comes to be read into the simple Saxon word at the head of our paper.

Induced by a newspaper advertisement to put up for a professional vacancy, we find at the last moment that all the committee have given promises of support to the local candidate, and that the advertisement is merely a "matter of form." Or,

again, we experience a shock in the discovery that the acquaintance who has been actively cultivating our friendship is trying to move in two sets at once, and that in the superior circle he disowns us as a person of no importance. Or perhaps, as we turn the corner, we surprise the object of our human worship, the champion of supra-human sympathy and ideal integrity, in the act of saving appearances and concealing a pipe in his sleeve, making us doubt whether he is not ashamed of the touch of nature which makes men kin, and whether our St. Simeon Stylites, when the simple folk are not about, is not in the sly habit of getting off his pedestal and having a good time of it with old King Cole and St. Ally Sloper. These matters startle us: we rely less on public officers and private patrons, we become cautious how we choose our friends, we begin to ask ourselves whether worship, like charity, does not best begin at home. Perhaps a more serious shock still may come to us. The Right Reverend Father in God, Bishop Wilberforce, used to deliver his fluent extempore charges from a manuscript which lay before him upside down, the leaves of which he occasionally turned. He had eventually to explain that by this artifice he wished to dissuade the younger clergy from aping his spontaneous oratory, and preaching without preparation. This instantly raises in the mind of every reader the questions, "Am I prepared to be the willing victim of innumerable pious frauds? Are State institutions based upon stern common sense, or are they merely a form of this benevolent humbug? At least let me know which are the frauds and which the realities."

Probably one of our earliest discoveries is that all pious frauds are senile half-truths. They were never brand-new forgeries. When Lucretius began to have doubts about the Roman mythology, we can scarcely suppose but that many pious citizens who had a firm faith in Alma Venus, and in a Jove who amused himself by thundering in a clear sky, were grievously shocked. Certain natural phenomena had by the then world been blunderingly put down to personal agency, just as a child cries out "Naughty table!" when he has run his head against it. It was certainly better to suppose that Ceres brought round the crops, and that the citizens were indebted to Bacchus for periodical vintages, than not to notice the recurrence at all; and thankfulness to Neptune for fine weather showed that their industries had reached the stage when it was important for them to have a calm sea. It will seem to us odd that they did not light on a more scientific conception, that the anthropomorphic method helped and not hindered them; but to reach the full explanation of this we should have to dive into scarcely-fathomed depths of psychology. The fact must be accepted. The choice is Hobson's—attribution of facts to pseudo-human agency, or else facts not observed or prospected at all.

We probably decide that we will not be customers for make-believes. We will write our own creed, whatever time and trouble

it may cost us. Not Ceres sends the crops, but they follow certain meteorological conditions of damp and sunshine; chemical materials, which you might snugly cork into bottles, build up the seed, and its form is determined by the internal and surrounding physical force, which, if it is able to condense nebulæ into planets, may certainly be entrusted with a barleycorn. True, that grain is often tyrannised over by smut and rust and bunt, and a variety of ill-sounding ailments, almost as many as the ills to which human flesh is heir, but even these can scarcely be attributed to a divine spite on the part of the goddess, for the microscope always resolves them into some parasitic plant or insect produced by conditions not very dissimilar to those which resulted in the host on which they spunge.

This is eminently satisfactory, though the creed promises to be a long one. What made the May rains which conduced to the fine harvest? Surely this grace was due to the attention which we bestowed upon the rites of Æolus, who thereupon decided to despatch to our neighbourhood his fleecy flocks. But science explains that an unevenness of temperature set up a current which discharged its burden of moisture taken up in warmer climes. "But this temperature," we cry out—"*that*, at least, is due to some supreme, sedent Jove, hurling meteorites for hand-grenades, and in more peaceful seasons devoted to the domestication of homing eagles." "Nay," answers Science, with her irritating calmness, "to nothing more human or divine than the gravitating tendency of the myriad tons of matter which make up the sun." "But this 'gravitating tendency'—what is its nature and what its antecedents? Confess that it is the will of Jove." "It may be," she answers." "May? *Must* be!" "Nay, may *not* be." "And this is your boasted truth—a foundation of ignorance?" With a calmer, prouder look than before, Science answers: "This *is* truth—a foundation of ignorance, though perhaps it would be better to confine the word 'foundation' to its original and not misleading brick-and-stone connection."

The less arrogant enquirers she takes to her study, and expatiates to them on the human understanding, its scope and its boundaries. Such an enquirer was the kindly and genial Locke; such the thrifty and industrious Hume; such a one, too, is the prince of modern thinkers, whose name there is no need to mention, for England has few sons of whom she has a better right to be proud.

What, then, does Science teach us about Truth? That it is the agreement or correspondence of thoughts with things, of the internal world with the external. The parallelism we call truth, the divergence we call falsehood or mistake. Whence come the lines? We do not know. How far do they proceed? We cannot tell. The parallelism is indeed never perfect, but tends ever to become more so, as the hyperbola ever tends, but is never quite able, to join its straight line. There are some, indeed, who will tell us

that the external world is the creation of our own faculties; and doubtless, if we had another sense, our surroundings might wear a totally different aspect. There seems little reason, for instance, why gas escaping from the burner should not produce in us a sensation of colour, or a burning candle a delicate taste. But while the human race is endowed with its present perceptive organs, a strong smell of gas and an open light will certainly be followed by a violent explosion; though, again, the explosion itself be doubtless a mere effect on the human system, which, were we differently constituted, might seem a pleasing aroma or a soothing embrace. And it is very much more important for us to notice that as many times as the effects on us of escaping gas and a naked light are brought together, so often do the effects on us of singed hair and broken windows occur. These events have happened so frequently in our own or our ancestral experience, that an acquired instinct, we may say, forbids in most of us the banns of juxtaposition; while the unfortunate person who has not succeeded in acquiring these instincts is extremely unlikely to keep himself alive, at least in a vertebrate condition. We will not presume to say what part he will occupy in the consciousness of bacteria, or burying beetles, though if any non-human consciousness attends the decay of a bung, imperial Cæsar dead and turned to clay may still be felicitating molecules of himself that we cannot conveniently do without his aid.

This instinctive knowledge that certain familiar phenomena invariably follow certain other phenomena may properly be termed the catholic faith, which, except every man acquires, without doubt his lineal race will drop out of the competition.* And the common-sense reader will observe that these sequences of effects are in every way very much more important to us than the knowledge of the ultimate source and the final goal of matter and force—subjects which may very satisfactorily be left to the never-ending mental gyrations of the ontologist and metaphysician, whether German or British.

We will not weary our readers with the social aspects of the theory of relative Truth, although it has a good deal to say on such trifles as domestic, social, mercantile, and national honesty, and particularly on the most important of all social phenomena, French Revolutions and the like.

W. GREATHEED.

* Since writing the above sentence, I am flattered to meet with the same thought in the gospel of Agnosticism, according to Mr. Shorthouse. "Absolute truth is not revealed. * * * * * * * * Let us trace "the individual man from small origins to the position he at present fills. "We shall find that he has attained any position of vantage he may occupy "by following the laws which our instinct and conscience tells us are "Divine. Terrors and superstition are the invariable enemies of culture "and progress."—*John Inglesant, new edition, pp. 443, 444.*

ROBINSON CRUSOE, B.Sc.

AN AUTOBIOGRAPHY.

I do not propose to relate the history of my early years, full of interest though the account would be, but to take up the thread at the close of my college career. Having taken my degree, I decided, after mature consideration, that my mission to my generation would be best fulfilled by the foundation of a centre of culture among the Fiji Islanders. It was patent that so gigantic a task required great talents, a wide and comprehensive knowledge of humanity, and an over-mastering power of adjustment of means to ends. These qualifications I undoubtedly possess, and it was on this account that I decided on my career.

My family being unenlightened and old-fashioned, made many objections, my father even going to the length of exclaiming, with great emphasis, "Herbert Spencer be fiddled! You stop at home, lad, and get to work!" It was not, however, for nothing that I had become a graduate of the London University, and had completed my nineteenth year. Being, therefore, much more competent to judge of such matters than the slow-thinking members of the last generation, I firmly adhered to my resolution, and accordingly sailed in the "Electromotor," on the 1st of April, 1890.

My outfit consisted of a miniature edition of Roscoe and Schorlemmer's Compact Laboratory, a 39-inch pocket telescope, and a Mason College Calendar. Books I had no need of, as my reading had been exhaustive, and my memory was retentive. The voyage was uneventful, until one day, when we were in about 7° 59′ 22″ N. lat., as nearly as I could calculate. I was then engaged on a treatise to explain a phenomenon which had been brought under my notice by the captain's wife: it was the familiar fact that a lump of sugar put into the teapot materially assists that beverage to "draw." (I quote the words of the above-mentioned lady.) I proposed to explain it on the principle of exosmose and endosmose, and I had written no more than "A Work on the Extraction of Tannin by a Saccharine Solution," when I was interrupted by cries of "Danger ahead!" I rushed up the companion ladder, and in the short time that elapsed before I gained the deck my active brain had elaborated a plan of escape from the undoubtedly sinking ship. I would not trust myself to the ship's boats, so often were they swamped by a crowd of useless women and children; but having perfected my nautical knowledge during the voyage, I determined to trust myself to that part of the vessel known as the flying jib—my reason for this being that, as the sea was rough, the air would be a safer and more convenient means of transit.

Regardless of the remonstrances of the ignorant and excited sailors, I calmly and firmly proceeded to carry out my resolution. Hardly had I reached the flying jib, however, when I received a severe blow on the head, from what source I do not know. It

must have stunned me, for when I recovered consciousness I found myself lying on a sandy beach.

With that energy and readiness which characterises the truly scientific mind, my first action was to make a thorough search for the flying jib. While I was thus engaged I remembered, with satisfaction, that the main-sheet was attached to it, which, I reflected, would probably be of great service to me, in case I needed it, for purposes of spectroscopic demonstration. My researches, though systematically conducted, proved fruitless. Neither the flying jib nor the main-sheet was forthcoming, and I could not even discover a piece of rope. It was next necessary to construct a hypothesis to explain their disappearance, and this I at once proceeded to do. After much consideration the solution of the problem occurred to me. It was quite simple, though very ingenious: the flying jib, having conveyed me safely ashore, had very naturally proceeded on its course, and flown away.

This matter settled, my thoughts reverted to my treatise, which had met with such untimely interruption. The valuable ideas which I had not yet been able to record might be partially obliterated from my memory if I omitted to write them down. With that fertility of resource for which I have always been noted, I perceived at once that the smooth sand of the sea shore would furnish excellent tablets, so, providing myself with a short stick, which I used as a style, I proceeded to my literary labours. These occupied some time, and before I had finished, certain physical sensations supervened which induced me to postpone their completion. Accordingly I desisted, to diagnose my symptoms, which I ultimately concluded proceeded from want of food. This being the case, it was incumbent upon me to proceed to the unintellectual task of getting something to eat, so I for the first time inspected my surroundings. The shore on which I was cast was that of a sheltered bay; not far inland were spreading trees, and a clear stream flowed into the sea at no great distance. Nowhere did I see any signs of human habitations, or of animals wild or domestic. It was evident that I was the discoverer of a new country, and a thrill of geographical ecstasy pervaded my frame as I reflected upon what a grand untrodden field I had entered. My raptures were, however, cut short by the recurrence of the symptoms before alluded to. At that moment my eyes fell on a square wooden case lying on the beach close to where I had landed. I opened it without difficulty, and found that it was filled with ship's biscuits. With these I satisfied my hunger, and meanwhile elaborated a theory to account for their presence. The facts of the case were simple but scanty. The box was one belonging to the "Electromotor;" it had by some means been transported to the shores of the Unfriendly Island. By *what* means? No evidence was afforded by a critical examination of the box, save that the under surface was slightly damp. The conclusion was obvious: it had travelled on

the upper surface of the water, and the phenomenon was a simple illustration of the principle of surface tension. I now repaired to the sands to continue writing, but could find no trace of my treatise. The sands were broad, sparkling, and of varied hues; the strip consecrated to my work was white as snow. I searched for some time in vain, but at last at the water's edge I came upon the single word "Solution," just as a wave dashed over it and washed it into smoothness. The truth flashed across me: in my hastily-formed theory I had omitted to take the tide into consideration!

For a few moments my courage forsook me and I paced the shore dejectedly. Soon, however, an inward monitor bade me remember my Degree; my pride was roused, my hopefulness revived. I promptly determined to turn to the consideration of my most pressing needs, and to survey my resources. Seated on a rock, I ran over in my mind the necessaries of existence. First, of course, came pen, ink, and paper. Bitter experience had shown me the futility of attempting to dispense with these. Next, I must be provided with materials for the collection and preservation of specimens: cork, wire, camphor, ether, corrosive sublimate, dissecting instruments, blotting-paper, presses, a geological hammer, and last, but not least, a platinum crucible. A museum must also be constructed, and when these simple wants were supplied my career would be clear before me. I then emptied my pockets, and discovered that my resources consisted in—an eye-glass (as a matter of course), a button-hook, a cheque-book, a stethoscope, a tuning-fork, a piece of chalk, and a napkin-ring. My depression cleared away. With such materials as these a man of ingenuity could civilise continents. The eye-glass (a bi-convex lens) is capable, in the hands of a skilled optician, of serving innumerable purposes; the button-hook I could, by placing it in the magnetic meridian and hammering, convert into an excellent magnet, the value of which would be incalculable; the cheque-book would enable me to satisfy all my wants, as in order to get money I had only to communicate with the nearest bank; the stethoscope would be indispensable in diagnosis, and doubtless also in classification. At the tuning-fork I gazed for some minutes with the emotion of scientific art, as in imagination I saw myself dispensing harmony in unison to untutored multitudes on the "Movable Do" system; while the possession of the piece of chalk would furnish me with facilities for blackboard demonstration. The napkin-ring was very precious to me, representing as it did, all the refinements of civilised life.

I proceeded at once to carry out my intention with regard to the button-hook, and placed it at what I considered the correct angle, striking it at the same time repeatedly. I may here mention that, curiously enough, though I frequently varied the angle and reversed the button-hook to ensure suitable conditions for magnetisation, I did not succeed in obtaining a thoroughly satisfactory

result. I next strolled inland. Crossing a grassy slope, I entered great tangled woods with luxuriant tropical vegetation. Here indeed was a field for my labours! Within a radius of twenty yards I could occupy myself in botanising for many days. I at once commenced to collect specimens of all the plants I saw around me. The first I endeavoured to secure was a very fine species of Aloe, with ensiform leaves several feet long, and very thick and tough. As I had no knife, it was no easy task to detach the leaves, owing to the very strong bast fibres. I excogitated, however, a very ingenious expedient, which I considered would answer my purpose admirably. Having, at the expense of great time and trouble (never grudged in the pursuit of science, however small the result), cleared away the parenchyma and epidermis of the leaf and, exposed the fibres, I fixed my eye-glass to a neighbouring branch, so as to act as a burning-glass and focus the sun's rays on the fibres. By this means I considered they would be slowly and gradually ignited, and when they had smouldered so as to admit of my detaching the leaf, I could do so without further trouble. Sunset now approaching, I went to look after the box of biscuits, which I found in imminent danger of being washed away, as it was still lying on the sands. I removed it further inland, and, after another meal of biscuit, I seated myself on the box at the foot of a tree. Darkness very speedily came on, and I determined to spend the night in making what astronomical observations I could without the help of instruments.

Meanwhile I deliberated giving a name to the island, after the manner of other great discoverers. B.Sci. Land, Mason's Monument, Electrophore, and what other names suggested themselves to me were, however, rejected by my fastidious taste, and I determined to postpone my decision on this important matter. For convenience I, however, named the harbour Saccharine Solution, in memory of my treatise; and, having yielded to my feelings so far as to permit this decided deviation from scientific accuracy, I decided on Prosenchymatous Place for the rock on which I had found the Aloe.

(To be continued.)

THE UNION.

June 15th.—Mr. CULLIS in the chair, and fifty-four members present.

Professor HILLHOUSE, who had, at exceedingly short notice, undertaken to act as substitute for Mr. Blake, who was compelled to be absent, gave an untechnical account of the habits of one of the so-called "carnivorous plants," the round-leaved Sundew *(Drosera rotundifolia)*, which, he remarked, could be found growing at Sutton Coldfield. The plant grows upon boggy or heathy ground, and has a rosette of leaves growing, after the fashion of the primrose leaves, somewhat flat upon the ground. The blade of each leaf is round, about a third of an inch in diameter, and its

upper side and edge covered with stout bristles of some length, each bristle, or "tentacle," tipped by a small knob, which looks very bright and glistening from the presence upon it of a drop of viscid fluid which it has secreted. These drops are the origin of the name "Sundew." If a fly alighted on one of these leaves it was detained by the sticky fluid; all the tentacles which it touched in its struggles, as well as others, bent inwards and downwards towards the centre of the leaf; the fly was thus completely imprisoned, and only its dried remains ever escaped. The disputed question to solve was, Is the fly a source of nutriment or not? Pointing out that such a question as this can only be solved experimentally, Professor Hillhouse proceeded to detail the method and results of experiments, especially of those carried on by Francis Darwin, and described in the Journal of the Linnæan Society. Plants were fed with very finely chopped beef, others were not, (hereafter spoken of as "starved plants"), but otherwise both sets of plants were treated exactly alike. In the result, the fed plants produced brighter leaves, more flowers, and on longer flower-stalks, more seed-vessels, more seeds and those heavier, than the plants which were "starved." All this went to show that the Sundew had the power of absorbing and digesting organic matter, a power which is generally supposed to be confined to animals. Brief reference was also made to a number of other carnivorous (or insectivorous) plants, of which, as well as of the Sundew, models and diagrams were exhibited.

Miss RUBERY then read a paper on the "Art of Painting." She began with a short sketch of the history of painting, which she divided into six periods, illustrated by a wave line. After the first crude attempt to represent beauty, the wave rises to Greek art, falls again during the dark ages, and rises even higher than before for the Renaissance. Raffaelle, Murillo, Paul Veronese, Leonardo da Vinci were mentioned, the refined beauty of Leonardo's female faces being especially noted. The wave-line again sinks, and there is a transition state, after which Claude, Guido, Rembrandt, Rubens, Van Dyck turn men's thoughts into a new channel. Art further progresses under the care of such men as Reynolds, Gainsborough, Turner, David Cox. A very eloquent passage was read from a speech made by Mr. Charles Radcliffe, at the Cox Exhibition at Liverpool in 1875. Cox was always at work. He knew no tricks in art; he used the most simple means to record his great ideas. But though his work looks so easy, he would often tear up drawing after drawing before he could please himself. He is denied imagination, but this charge is refuted by the variety of incident in his works. Several interesting anecdotes about Turner were then read. He knew when to restrain his brush, and thus to leave scope for imagination. Miss RUBERY then proceeded to the practical part of her subject, and after defining the essential qualities of an artist as inventive genius, technical skill, a knowledge of composition, she

gave some account of the chief methods of composition, illustrated by diagrams. She then mentioned the colours discovered in recent times, which would have delighted early painters, and concluded by quoting Canon Barry's argument for the universal study of art, which is related to beauty as science is related to truth. Miss RUBERY had been at great pains to provide a large and valuable collection of paintings and engravings, some of the latter from pictures by De Wint, Turner, and Cox. As there was special business to be transacted, it was decided, with Miss Rubery's consent, to defer inspection of these till after the special meeting; but unfortunately no time was left for the purpose, and a great treat was lost.

June 15th.—Special general meeting held after the ordinary meeting.—On behalf of the Committee, the CHAIRMAN proposed and the SECRETARY seconded a series of alterations to the rules, all of which were carried except that relating to rule IX. It was proposed that this rule should read, "The Committee and Officers shall be elected in the following manner: "The nominations of candidates for election on the committee shall be sent in to the secretaries, signed by two members of the Union, at least forty-eight hours before the Annual Meeting, and shall forthwith be posted. The election shall be by balloting papers. From the committee thus elected the officers shall be chosen in the following order—(1) the chairman, (2) the secretaries, (3) the treasurer. Each of these must be proposed by one member and supported by two others. The election of the officers shall also be by balloting papers."

After considerable discussion, Mr. GREENE proposed and Mr. BARWISE seconded, as an amendment, to add after "The election shall be by balloting papers" the words "and not less than six new members shall be on the committee." Seventeen voted for this amendment, and twenty for the alteration as proposed by the Committee; but as forty-nine members were now present, and no rule may be altered without the votes of three-fourths of the special meeting, the proposition was lost. The object of the supporters of the amendment was to provide for the return of a large number of fresh members on the committee from time to time. The present committee and their majority were equally desirous of this, but they argued that with so many members continually leaving the Union and the College, and with the increasing difficulty generally experienced in giving sufficient time and effort to the management of Union affairs, it was not necessary to legislate against the re-acceptance of office by any large majority of old members of committee. They feared, moreover, that as the committee is already composed of lady and gentlemen candidates in proportion to the numbers of lady and gentlemen members in the Union, the introduction of an additional basis of selection might awkwardly complicate some future election. Although there was thus so much of agreement between the two sides of the

house, this discussion was more spirited than any previous one in the short history of the Union.

October 5th.—Mr. Cullis in the chair, and seventy-two present, including visitors. Four new members were elected. The evening was devoted to the reading of the Holiday Notes. Miss Rubery related travelling experiences in the Island of Arran, Mr. Carter on the Norfolk Broads, Miss Naden in Italy, Mr. Martin in Normandy, Miss Ellerman in Scotland, and Mr. Greatheed gave an account of a pilgrimage to the tomb of John Locke, with a short sketch of the life of the philosopher. The papers were all lively, and full of amusing incident, and were well received by the audience, but as they were condensed narratives of events which occupied several weeks, and in some cases months, further abridgment could scarcely preserve a taste of their quality.

INVOCATION.

The following Invocation is attributed to a Member of the Natural History Society on the occasion of its recent expedition to Oban :—

Litania ad usum confraternitatis
Sancti Spencerii cultorum.

O Sancte Herberte,
Lucem da nobis !
Rex philosophorum,
Dux syntheticorum,
In sæcula sæculorum,
Lucem da nobis !

It has been thus rendered by Mr. Badger, of the King Edward School.

O blessed Herbert,
Grant us thy light !
Prince of philosophic mages,
Chief among synthetic sages,
To the ages of the ages,
Grant us thy light !

THE EYE.

(FROM THE GERMAN OF EMIL RITTERSHAUS.)

The human soul—a world in little ;
The world—a greater human soul ;
The eye of man—a radiant mirror,
That clear and true reflects the whole.

And, as in every eye thou meetest,
The mirrored image is thine own,
Each mortal sees his soul reflected,
In all the world himself alone !

ON THE WATER.

(FROM THE GERMAN OF EMANUEL GEIBEL.)

Now hill and dale begin to bloom anew,
The tree-tops bud, and winds pass whispering through;
The bugle notes grow faint with sunset's red—
I would be merry, but my heart is dead.

My comrades ply their oars, and scorn delay,
The furrowed wave gleams back the starlight ray;
To the guitar the dancing boat is sped—
Fain were I merry, but my heart is dead.

The moon is up, and clearer shine the skies,
From every bosom songs of mirth arise;
In all our goblets wine glows darkly red—
Fain were I merry, but my heart is dead.

And could my love rise up from out the grave,
And grant all dear delights that once she gave,
And say all tender words that once she said—
In vain! The Past is past, the Dead are dead.

SONG.

Think not I roam afield
With heart untrue;
The gifts my rambles yield
Are all for you.

The bird must leave her nest
And fledglings five;
The honey-bee must rest
Far from her hive.

New regions I explore
When day is bright;
My heart, with richer store,
Goes home at night.

COLLEGE INTELLIGENCE.

NOTICES.

A course of seven Lectures on "Certain Methods of Teaching" will be delivered by H. Courthope Bowen, Esq., M.A., Principal of Finsbury Training College, during the Winter Term, on Friday evenings, at 7.45, commencing October 19th. Admission free by ticket.

During the ensuing Session a series of special Lectures upon Coal Mining will be delivered by the Professors in Chemistry, Geology, and Engineering, and Mr. John Brown, M.Inst.C.E., F.G.S., the

Lecturer on the Theory and Practice of Coal Mining and Colliery Management. Mr. W. F. Craig, M.P., will deliver the Inaugural Address on Monday, October 15th. The opening Lectures on the Chemistry and Geology of Coal Mining will be delivered by Professor Tilden and Professor Lapworth on Monday, the 22nd of October next, from 4 to 5 and 5 to 6 p.m.

Miss Dale.—It is with great regret we record the departure of one whose place among us will not easily be filled. The union of business qualities with unvarying courtesy and consideration which distinguished Miss Dale as sub-editor, the judgment and discrimination which marked her as a member of the Committee, her earnestness and helpfulness as a fellow student, have won for her our gratitude and esteem in the past, and our most sincere good wishes for success in the new sphere of study for which she is leaving us.

UNIVERSITY OF LONDON.

PRELIMINARY SCIENTIFIC (M.B.)

Jordan, W. R. } *First Division.*
Sadler, E. A. }

Baine, L. A.
Blake, J. E. H.
St. Johnston, C.
Royce, Mary
Smyth, N. E.
Snell, E. H. } *Second Division.*

INTERMEDIATE EXAMINATION IN SCIENCE.

Evans, I. C. } *First Division.*
Groom, P. }

Baine, L. A. *Mathematics.*
Blake, E. J. H. *Mathematics.*

Honours.

Blake, J. E. H. *Botany.*

INTERMEDIATE EXAMINATION IN ARTS.

Penn, W. C. } *First Division.*
Tunstall, C. O. }
Pope, L. J. *Second Division.*

Honours.

Penn, W. C. *Second Class.*

INTERMEDIATE EXAMINATION IN MEDICINE.

Barratt, J. O. W. } *First Division.*
Melson, G. H. }
Barwise, S. *Second Division.*

OUR CONTEMPORARIES.

The Owens College Magazine for June opens with an article on "Music: its Importance as an Educational Influence," well pointing out the complementary nature of science and art. But is it quite fair to attribute the scant musical genius of present-day England to the "strangling grip" of "ecclesiastical prejudice"? And what are we to understand by "that enshrined order which is the essential essence of truth"? "Some Variants of the Lear Story" is exceedingly interesting. "The Development of Life" is obscurely written, and deals too much in vague generalisations. The writer is evidently a diligent student of German philosophy, but he fails to present a clear abstract of his studies. The very valuable paper on "Germs" opens with a suggestive comparison of disease germs with the evil spirits which, in the "dark ages of medicine," were supposed to float about in the air, and to afflict with various maladies those who had forfeited by sin the protection of

Providence, or, as we should now say, had neglected hygienic precautions.

The Marlburian for June contains an instructive comparison between "Mill and Mazzini;" and a musical, though diffuse, poem on "Courage." It is rather startling to read that at a meeting of the Natural History Society, "the president exhibited a series of magic lantern views of Cordova, Grenada, Toledo, and other cities of Spain"! In the July number is an amusing article on "Wiltshire Character."

The Girton Review for July records much activity, mental and otherwise, and is chiefly distinguished by a tone of bright girlishness. We are sorry that so "flippant" a subject as the abolition of the House of Lords should have occupied the only debate of the session. We had fondly deemed the question serious (in common, doubtless, with the threatened House), and feel abashed by the high disdain with which it is treated by Girton editors.

The King Edward's School Chronicle presents us with little original matter. The notices of contemporaries are, however, as entertaining as usual, evidently proceeding from the fresh intellect of one of the younger boys.

The Haileyburian for June and July is lively and readable throughout, some of the poetry being of considerable merit. We cannot help smiling at the following somewhat ambiguous remark on the attitude of a monumental effigy:—

"For the next world hath effected wondrous metamorphosis,
And good Mother Church hath posed him as he never posed in this."

We congratulate *The Institute Magazine* for September on its improved appearance. Its contents this month are mainly introductory.

In addition to the above, we acknowledge with thanks the receipt of *The Reptonian* and *The Wykehamist.*

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee of good faith on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Sept. 29th, 1883.

Sir,—Owing to the prevalence of smallpox in and near Birmingham, my thoughts have lately been much exercised upon the philosophy of vaccination, and I communicate with you in the hope that some of your readers may be able to solve the problem, or to inform me if the solution which has presented itself to my mind is in any way admissible. I should premise that my medical knowledge is at present of a very elementary description.

It seems at first sight strange that an attack of measles, of scarlet fever, of smallpox, should render the constitution less liable to a second attack; especially when we remember the general law that force exerted in any one direction tends to facilitate, not to hinder, the future exertion of force along the same lines. This law is by no means unknown to pathology, being exemplified in such diseases as bronchitis and inflammation of the lungs, which always tend to recur in the affected organ, which becomes

highly susceptible to unfavourable conditions. Why should it be otherwise with smallpox, and its mild representative, cowpox?

It seems to me—though I am probably uttering a mere truism, long recognised by all acquainted with the subject—that the germ theory gives a clue to the puzzle. The principle seems to be that of rotation of crops. When the smallpox or vaccine germs are planted in the human body, they, as it were, exhaust the soil, by withdrawing from it the special nutriment which they and their kind require. Until the element withdrawn is renewed, which may happen sooner in some constitutions than others, the patient is not liable to the return of the disease.—I remain,

Yours sincerely,

X. Y. Z.

To the Editor of the *Mason College Magazine.*

Sir,—In the Union Programme for the winter term, I see "Critical Readings" put down for November 16th. The phrase is, to say the least of it, perplexing. According to its proper grammatical construction, the people who read are to be the critics; but are they to criticise themselves, or the book they are reading, or the audience? Or perhaps the word "critical" is used in the sense of "indicating a crisis;" if so, what is the crisis indicated? It is just possible that the audience are intended to give their critical opinion for the benefit of their readers; and in this case, I most heartily welcome this new departure, which will doubtless improve the College style of elocution, hitherto wofully defective.—I am,

Yours truly,

ŒDIPUS.

To the Editor of the *Mason College Magazine.*

Sir,—May I venture to call your attention to the following miscellaneous list of requirements?—

WANTED.

A Union room. Public corridors and silent libraries need not apply.

An editor's table.

An occasional chair or two for officers transacting business.

Recognition that if individuals may honourably earn money and pay their debts, it is snobbish to think that individuals in Union, doing the like, would lose even a milligramme of caste.

Laboratory assistants for genial professors.

A laboratory course of Petrology.

A Birmingham Chair of Political Economy.

A Society for the Liberation of Physiology from Tait patronage and control.

The geometrical chances of Somebody being hit if the instigator of such a society were foolishly challenged by Somebody feeling aggrieved.

An A B C guide to the Victoria University Bradshaw.

A table of *present* equivalents for the London, Oxford, Cambridge, and Victoria degrees. Unit of measurement, St. Andrews.

A table of *future* equivalents. Unit of measurement, Durham.

The identification of X in the following proportion sum:—Birmingham (1791) : Priestley :: Birmingham (1883) : X.

A demure, docile, and taciturn young gentleman to be trained for the medical profession.

The date A.D. when the Sociological Section of the Natural History Society will have finished reading Mr. Herbert Spencer's "Principles of Biology."

I am, yours truly,

VOX CLAMANTIS IN DESERTO.

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EXOTIC ART:

BEING A LECTURE

DELIVERED BEFORE THE MEMBERS OF THE

BIRMINGHAM AND MIDLAND INSTITUTE,

BY THE HONORARY SECRETARY,

JOHN HENRY CHAMBERLAIN,

ON MONDAY EVENING, OCTOBER 22nd, 1883.

"A deeply interesting memorial of Mr. Chamberlain has just been issued—the full text of his last lecture on 'Exotic Art,' edited from the writer's own manuscript notes by Mr. Arthur B. Chamberlain, his eldest son. It is issued in pamphlet form by Messrs. Cornish Brothers, New Street, and is printed and announced in a manner altogether worthy of the memory it records and the matter it contains. The covers of the work are from Mr. John Henry Chamberlain's own designs; the frontispiece is a *facsimile* in colours of the last Christmas card he issued; and opposite the preface is printed a sonnet—a very touching one—he wrote so lately as last April. Many of Mr. Chamberlain's friends will be glad to possess this memorial of him."—*Birmingham Daily Post*, November 8th, 1883.

"Messrs. Cornish Brothers, of Birmingham, have just published the last lecture delivered by Mr. J. H. Chamberlain on 'Exotic Art'—a feature which possesses a melancholy interest, inasmuch as the lecturer died very shortly after it was learnt from his lips to the Midland Institute. The lecture is given very fully, and is an exquisite specimen of neat and beautiful typography."—*Birmingham Daily Gazette*, November 8th, 1883.

"Mr. Chamberlain's last lecture—that on 'Exotic Art'—has been published from his notes, with a preface by his eldest son, Mr. A. B. Chamberlain. It is exquisitely got up by Messrs. Wright, Davis, Peyton, and Co.—and contains a reduced print of the last Christmas card Mr. Chamberlain designed. In all respects the production is a graceful and artistic memento."—*Birmingham Daily Mail*, November 8th, 1883.

BIRMINGHAM:
CORNISH BROS., 37, NEW STREET.

Vol. I. PRICE SIXPENCE. No. 9.

THE Mason College Magazine



EDITED BY STUDENTS OF MASON COLLEGE, BIRMINGHAM.

DECEMBER, 1883.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

JOURNAL WORKS PRESS

DECEMBER, 1883.

Monday, 17.—Winter Term Examinations begin.
Tuesday, 18.—
Wednesday, 19.—
Thursday, 20.—Winter Term ends. [illegible]

JANUARY, 1884.

Tuesday, 15.—Matriculation Exam. (2nd day). Spring Term begins.
Wednesday, 16.—*Id.*
Thursday, 17.—*Id.*
Friday, 18.—*Id.* Union Meeting: "Messiaen" [illegible]
Saturday, 19.—

Monday, 21.—Evening Classes recommence. Lectures on "Coal-Mining" begin.
Tuesday, 22.—Lord Bacon born, 1561.
Wednesday, 23.—
Thursday, 24.—
Friday, 25.—Union Meeting. Papers: "Relation between Plants and Animals," [P. Gross]; "Agriculture," E. Bonham.
Saturday, 26.—Dr. Jenner died, 1823.

Monday, 28.—
Tuesday, 29.—
Wednesday, 30.—
Thursday, 31.—

FEBRUARY.

Friday, 1.—Union Meeting. Debate: "That the press of manipulating political Scientific [illegible]
Saturday, 2.—

Monday, 4.—Matriculation Pass List published.
Tuesday, 5.—Union Meeting. Paper: "Louis" Blue Alberti. Lecture [illegible]
Wednesday, 6.—[illegible]
Thursday, 7.—Charles Dickens d., 1870.
Friday, 8.—
Saturday, 9.—

Monday, 11.—Classified Matriculation List published.
Tuesday, 12.—Charles Darwin born, 1809.
Wednesday, 13.—Meeting of Council.
Thursday, 14.—
Friday, 15.—Galileo born, 1564. Union Meeting. Debate: "That it is inexpedient [illegible]
Saturday, 16.—

Monday, 18.—
Tuesday, 19.—
Wednesday, 20.—

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 9, Vol. I. DECEMBER, 1883. Price 6d.

SUB-EDITORIAL.

Travellers in Australia have described the concentric waves of fauna and flora that are spreading over the island, from the centres at which civilisation, chiefly by the agency of its convicts, began its conflict with bushmen, marsupials, and the everlasting gum tree. Squatters up country are able approximately to calculate the year when first they will be plagued with Scotch thistles, and when the rabbit nuisance will dispossess the kangaroo plague. And in civilised life we have waves not dissimilar, and even institutions spread themselves centrifugally. The Grammar Schools of King Edward VI. are of interest in this connection; so, too, the spread of provincial medical schools; whilst now the rage is for science colleges—colleges, that is, having for their aim an increasingly accurate common knowledge. But the curious fact has yet to follow, that the science wave has a tendency to coalesce with the medical wave. In Liverpool, in Newcastle, and we think in Manchester, this coalescence has taken place, whilst nearer home it seems even now in active progress. Clearly, in the biological world an analogous phenomenon cannot take place. By the way, would not Queen's College like to have a representative on the Magazine staff?

Wisely, we think, the Union has decided to reduce the annual issue of this Magazine from nine to six. There were not wanting signs that, in the flush of its first enthusiasm, it aimed a little too high. It has been supposed that an amateur magazine, with a high-class and therefore limited circulation, could cope in size and in price with professional publications. It has been imagined that editors could make the bricks of solid literature without the loose and compressible straw of contributions. It has been forgotten that to write for gay and irresponsible students reduces the list of the perhaps unduly dignified and thoughtful subscribers, whilst it is certainly not meet to lucubrate exclusively for the thoughtful, and to take the children's bread and give it to parents and nurses. Total annihilation is, of course, a cure for these and all other evils, but annihilation in homœopathic doses is probably a wiser remedy. To compare great things with small, a foodless tub will often in a day or two restore the digestive equilibrium of my lady's lapdog. Possibly, then, 1885 may again see the full issue.

Readers of George Eliot—a periphrasis for the intelligent world—will remember the rare old butler depicted in Theophrastus Such, whom it was impossible to astonish with information, however wonderful. "I have taken to asking him hard questions, and, as I expected, he never admits his own inability to answer them without representing it as common to the human race. 'What is the cause of the tides, Pummel?' 'Well, sir, nobody rightly knows; many gives their opinion, but if I was to give mine, it 'ud be different.'"

Conscious as we are of the awful loss of respect in students' eyes incurred by students who dare to be content with official utterances and official doings, we are yet able to render to the Chairman of the Academic Board nought but respect and gratitude for his opening address.* "Nobody rightly knows; many gives their opinion," but if we were to give ours it would be on all fours with the address. We anticipate the contemptuous "Well, and what do you know about it?" Not much, probably, but we just remember the fable of the wren who was carried into the azure by the unconscious eagle. And then didn't the wren endeavour to struggle higher still a few inches on its own account?

The Professor likens a common sort of teaching and examining "to the charging of those secondary batteries . . . . . which only give back what was put into them, with some inevitable loss by leakage. So we" (that is, teachers generically,) "charge our students with instruction, and estimate their value by the percentage they can restore in the examination room. But a true University training is something very different from this . . . . . The students . . . . . learn to arrange their knowledge in their own way, and arrive at results by their own methods. In short . . . . . they learn the best of all lessons—the way to teach themselves." Stress is laid upon the social aspect of University life. "A student may often have to give up his old opinions, but those which he keeps and those which he acquires he learns to hold on surer ground." "The work of the class and the laboratory must have its complement in a vigorous college life outside the lecture room. The solitary student, no matter what distinctions and prizes he may win, misses almost the best part of a college career. He misses the talks over work with those who are studying the same subjects. He misses the widening of the intellectual sympathies which arises from the association with others who are engaged in different studies. The student life cannot be fully developed all at once: it is necessarily of slow growth, but I think that we at Mason College

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* "University Training in our Provincial Colleges." An address delivered at the Mason Science College, on 2nd October, 1883, by J. H. Poynting, M.A., Professor of Physics at Mason College.

have already much of it." And so new students are asked to take their part in promoting the student life, since they are members of the general body, and have duties towards their fellow students.

We are not very, very fond of that word "duty." What saith the poet Clough?

Duty—that's to say, complying
With whate'er's expected here:
On your unknown cousin's dying,
Straight be ready with the tear.
* * * *
Go to church—the world require you;
To balls—the world require you too;
And marry—papa and mamma desire you,
And your sisters and schoolfellows do.
Duty—'tis to take on trust
What things are good, and right, and just.

In infant days to how many unneeded charges of grey powder did *duty* not perform the functions of a moral ramrod, to how many mustard plasters did we not succumb under its ogre-like spell, when all that was needed perhaps was the *vis medicatrix* of genial Nature. Duty, we are convinced, invented Greek accents. Duty ever victimises itself with new boots. Duty never laughs. Duty daren't smoke. Duty knows nothing of physiology or of its sub-sciences, cricket or football.

But certainly "new students are members of the general body," and if the "limb of science" refuses its share of the circulating juices, *tant pis* for the limb. For five shillings the limb may have about twenty-five teas, he may mingle in a gay crowd, where Gibbon would have been content, where Goethe would boisterously have catered for the common good, and where Anthony Trollope would have picked up many a hint for a sensation novel. Cheered, and not inebriated, the student may on each occasion teach his tongue to vibrate more easily, and to his knees a lesson in steadfastness, and at least once in a year he may be the set piece, and, improving on the "Ancient Mariner," by the dozen and by the hour may button-hole his wedding guests. Venturing, then, to substitute for "duty" (bare, unfriendly, 32° Fahrenheit duty), the phrase "enlightened self-interest," we gratefully adopt and second the Professor's encouragement.

It must not, by the way, be forgotten that it is as impossible for one College or University to resemble another as it is for one man to be like another, for two centuries to be identical, or for one tract of country to resemble its neighbour. Each University, whether in England or Germany, is more or less specialised, and brags some special commodity. Of five hundred jewellers in Birmingham, the businesses of no two are duplicates. The *specialité* of a College is of course in some sort of relation to the environment in space, and to the period of foundation. Will Mason's College in the dim future be noted for mathematics like Cambridge, like

Edinburgh for medicine, like Jena for biological science, or like Oxford for classics? We should be glad to receive predictions on the subject. Five hundred years hence they will cause much amusement.

With what solemnities can we best open the new students' common room, 53ft. × 15 or 22ft., which Mr. Hodgkiss promises shall be ready for the spring? And may it be looked on as, in some sense, the first fruits of some humble hints and representations by the Union and Magazine? Then the Union and Magazine will not have lived in vain.

Honour to whom honour is due! The Editor wishes to express her gratitude to Mr. A. N. Hopkins, of Oversley, Bristol Road, who presented to the Magazine a most useful cash-box. No properly constituted editor would refrain from this act of courtesy, even though there should flash across her mind the definition of gratitude as "a lively sense of favours to come."

So at the Queen's College dinner there was some reparteeing as to the relative values for study of structure and function. Function is considered to have scored, and our sympathies are naturally with the winner. But, after all, the contention savours of logomachy. Is it better to have legs, or to take a walk into the country? Solomon, Aristotle, and Gladstone unitedly could not solve us this doubt.

The Comparative History of College Magazines is a science not yet recognised, though its value is self-evident. Mr. A. Neave Brayshaw, on application, writes kindly from Owens College: "At the beginning the Magazine was *very* irregular; then for a short time a Magazine every two months was tried; for a shorter time still one every month; but so early as 1871 there is an announcement that it would appear three times a session. Of course the oftener it comes out the better, if only you can get matter to fill it, and, even more important than that, if you can get editors who will undertake the job. I think that you must have more self-sacrificing students than we have to bring one out every month. I have seen all the numbers of the *M. C. M.*, and have liked them very much. Apart from considerations of want of time, the balance of kicks over halfpence on account of three numbers is bad enough. I don't know how it would be if we had any more. . . . . As to things not paying, that is hardly to be expected at first: ours did not pay its way at all till three years ago."

We read that "a department for women has been opened at Owens College, which counts eighty students, two or three of whom are reading for degrees, and are allowed to attend the senior graduating classes of the college." Our own lady students exceed this number. It must not be forgotten that lady students date as far back as Pythagoras.

W. G.

CHEMISTRY IN THE WEST INDIES.

Arrived at Montserrat, an island some ten miles long and five broad, washed on one side by the broad Atlantic and on the other by the blue waters of the Carribbean Sea, the first impression will depend largely upon the material in which the impression is received. Should the new comer be so fortunate as to arrive by the monthly mail steamer as it slowly makes Plymouth anchorage, he will notice the beautiful and lofty mountains in the interior, but he will, I fear, be more engaged in investigating the appearance of the shore and littoral region of Plymouth Bay. This investigation will hardly tend to enliven him. A narrow belt of dismal-looking sand, backed on the north by uninteresting fields of sugar-cane, and on the south by wooded cliffs; in the middle, most dismal of all, a back-view of the little town of Plymouth with the rickety little wooden jetty. Plymouth from the sea is depressing. Every building near the shore seems studiously placed to afford a blank, uninteresting view of the back; this, together with ruins, seems characteristic of the place. When a building falls into decay, it would appear as if it were an unconstitutional action on the part of the owner or anyone else to repair it, or to remove or veil the disfigurement; so here we find, in the midst of the town, remains of houses and stores and forts in the same mouldering and unlovely condition (for picturesqueness forms no part of their composition) that they have presented for years. When landed, the first enigma is, What has become of the streets? Such lanes as there are, from their tortuous nature and the irregularities of the buildings, look exceedingly as if leading to someone's private premises. Indeed, when being conducted to one of the largest business houses in the island, I at first thought that my guide's intelligence had induced him to take me by a private backway. I soon concluded, however, that the route we followed was one of the principal streets, and contained some Government offices. It required some few days, however, to clear up the mystery of these Government buildings; indeed, it was by no means clear until I had been driven to seek refuge there from a heavy shower. Having got so far, one has seen the most unpleasant side of Montserrat, and having boldly passed through these various stages of initiation, the newly-arrived will begin to see a brighter picture.

The island is very mountainous; scarcely anywhere can even a few yards of level ground be found. The principal mountains occupy three groups—one in the north, another in the south, and the group comprising Chance's Mountain in the centre. These mountains, all of volcanic origin, with the deep ravines cut out by the rushing streams, which, fed by the heavy tropical rains, appear and vanish in an hour, are the sources of the majority of the beauties

to be seen. Clothed to the summit with dense forest, they form pictures, and, where the paths admit of exploration, present scenes such are to be met with in few places in the world.

On the northern side of the southern group is a boiling spring—a *soufrière*—and as I recently had an opportunity of visiting it, perhaps I cannot do better than narrate the experiences of that day. Our party consisted of three—a Scotch gentleman resident on the island, whom I will call A, the captain of an English ship, and myself. A and I, then, started early in the morning for Plymouth, where we found our companion. We were soon all in the saddle, enjoying an easy gallop over the sands of the bay. After proceeding some distance a detour was made in order to visit a planter with whom A had business. Emerging subsequently from a ravine we came upon a negro hut, with a little cultivated patch of ground, in the midst of which stood a Barbadoes cherry (*Malpighia glabra*) in full bearing. The sable owner, after remarking, as the interpreter announced, that "he pay rent for dem," produced a long pole, and very acceptable after our exertions we found the ripe fruit. After passing a sugar-cane mill, it became apparent to several negroes at work that there were visitors to the *soufrière*, and possibly a harvest to the one who should be engaged as guide, or, as they styled it, "pilot." A selection having been made we continued our journey, the pilot assisting his steps over the hilly ground by grasping in his hand the tail of one of the horses, or, when circumstances permitted, deriving double assistance from a pair. This is a proceeding to which the horses seem quite reconciled. It struck me, however, on this occasion that it by no means added to the dignity of our appearance.

Whiffs of sulphuretted hydrogen, highly suggestive of a laboratory or of chemical works, now warned us of our approach to the desired spot. From numberless apertures issued jets of steam and H_2S, while in other places boiling water flowed away through self-cut channels of sulphur and sulphate of lime, deposited in considerable thickness over a large area. The whole scene was highly suggestive, both to eyes and nose, of an alkali waste heap transferred to the midst of a forest.

Dismounting and handing over the horses to the pilot to remove the saddles, we climbed over the gypseous mounds in search of the head spring. Round each of the many vents from which steam escaped was a beautiful display of small crystals of sulphur, which also formed beds of apparently several feet in thickness; but the principal constituent of the soft soil in the neighbourhood seemed to be sulphate of lime.

The water works a sugar-mill some long distance away. In one of the minor streams was a large deposit of what appeared to be precipitated sulphur. The water is not very disagreeable in taste or smell, the high temperature removing all H_2S. Samples of the water, and of the various deposits, were collected for analysis, and the party having satisfied its curiosity, began to think of

submitting its hunger to similar treatment. Eggs were therefore tied in a handkerchief, and, by means of a long stick, plunged into the boiling waters. In a few minutes they were thoroughly cooked, and the party, seated on stones and logs, a little removed from unpleasant fumes, unanimously agreed that the inspection of nature's wonders had by no means interfered with the appetite.

Once more in the saddle, we continued our way through the mountains, the intention being to cross to the other side of the island, and so get home.

For beauty and grandeur the path on the eastern side of the *soufrière* excelled all we had hitherto seen: leading through dense forest, parts of which are still unexplored, along the edge of precipitous ravines, where a slip of the loose road or a stumble of the horses would have been fraught with consequences horrible to think of; a little further, descending by steep and winding paths to the bottom of these ravines, at whose depth one had shuddered, and, again, by toilsome climbing, leading us far up on to the mountain side. All along the route fresh wonders were exhibited—in one place a forest of magnificent tree-ferns; in another, bamboos which towered to a height of nearly eighty feet.

A joyful exclamation announced the discovery of a calabash, which someone had either generously or carelessly left, and in a few minutes more, far away among the trees, I could detect the white helmet of one of our party inclined at such an angle as proclaimed as a success his search for a spring. How good water is, drunk from a calabash, requires a long ride in the tropics to correctly inform the enquirer.

It was nearly eleven p.m. when we reached our destination, tired, yet gratified in having had one of the finest rides the West Indies can afford.

May, 1883. F. Watts, F.C.S.

To Mr. Watts's contribution to the Magazine the Editor is permitted to append a few extracts from his private letters. It will be known to our readers that he is in charge of the chemical laboratory on the plantation of the Montserrat Co., Limited.

Feb. 23rd, 1880.—I have already disappointed myself with regard to observations made, either of people, plants, animals, or anything else: I feel that I have noted nothing where I expected to note so much. There is such a strange admixture in the negroes, who may, perhaps, be regarded in the light of natives—so much of the English with so much that is not English—that I am puzzled how to proceed in my observations. Again, there is such a state of hybridisation, and varied status attained by culture, as to render matters still more confusing. There are three terms employed here which to some extent act as landmarks—viz., white, coloured, and black people; the intermediate term, of course, indicating the hybrid. Again, there is another term which will serve to show

what I mean about status attained by culture—black-white people, who are those "natives" whose position is similar to that of the whites.

The house intended for my occupation is undergoing alteration, and will not be finished for some time yet, so that I am located "in town"—*i.e.*, in Plymouth—until it is finished. This keeps me about four miles from my laboratory, and four miles here is not a comfortable walk. When I want to do any work a horse is sent in to town for me, for riding is the only means of locomotion: hence you will observe that the process you hinted at is in progress. I am now beginning to ride pretty comfortably (the horse is not quite so diminutive as you suggested); I also protect myself with a great straw helmet; but the final stage—that of cigar-smoking—has not yet set in, though the cigars commonly exposed for sale are in length very like what you prophesied. I have done nothing in the way of work, except put my laboratory to rights a little. I found it tenanted by all sorts of abominations—rats, cockroaches, lizards, mason and other bees, and spiders, some dozen of species of all sorts and sizes.

There is a fine field here to study the origin of modesty. After a certain age the juvenile frame is covered with a single garment, a kind of cotton shirt, which can afford but little protection from the weather, and almost less from the eye. I was much amused by watching one lad, who had laid aside his garment in order to assist with some boats; on coming to resume it he was sorely puzzled for a time to know which hole should be appropriated to his head, for the thing was all in shreds. This stage being past, ordinary garments come into use, but boots are rarely worn.

May 6th, 1883.—It is not uninstructive from an evolutionist's point of view to hear the religious teachers of the negroes deplore the small influence their teaching has. Immediately under the pastoral eye they are all obedience and devotion, but their actual conduct is far from elevated. This, however, is exactly what is to be expected; and this leads me to enquire what should constitute a correct missionary system, according to philosophical requirements; how, in fact, is the enormous gulf which exists between highly cultured races of savages and others low in the scale, be the skin black or white, to be bridged over? Surely at best the process must be a long one.

It is true that our conceptions of the denotations and connotations of the term "home" are wholly to be influenced by the sphere in which our conceptions have been formed; still I think you are unjust in your wish to appropriate the luxury to colder regions and deprive the natives of the use of it. The connotation which in this climate I would substitute for your "fireside" should be indicative of community of meals and their preparation.

I was expecting an attack of the fever common to these districts, which often is very troublesome. Fortunately this threatened

attack seems now to be passing over. I had been exposed to a good deal of steam and heat in the concentrating house at the works.

The sharks here never seem to attack bathers, yet no special precaution is taken against them. I don't think the people often bathe singly.

I should very much like to hear from C. and D., as well as from any other student who may feel disposed to write. I by no means feel that I have severed my connection with Mason College.

MEDICAL STUDENTS' ANNUAL DINNER.

This was held at the Grand Hotel, on Thursday, November 15th. Dr. Sawyer presided, and the following gentlemen, amongst others, were present:—Messrs. Oliver Pemberton, Bennett May, S. Gamgee, R. Jolly, Chavasse, Jordan Lloyd, Haslam, Priestley Smith, Dr. Rickards, Dr. Carter, Dr. Suckling, Dr. W. Thomas, Dr. Simon, Professor Haycraft, and Professor Hillhouse.—The Chairman (Dr. Sawyer), in proposing the first toast, *The Queen and Royal Family*, referred to the profession as one conspicuous by its loyalty, a remark which called forth a spontaneous outburst of enthusiasm, which took the form of singing the National Anthem, an incident which was not upon the programme.—Dr. Carter then gave a song, which met with a hearty reception.—The Chairman then proposed *The Queen's and Mason's Colleges*, and took the opportunity of paying a graceful tribute to Professor Haycraft. The toast was acknowledged by Dr. Suckling, for Queen's College, who exhorted the men to pay especial attention to the study of anatomy, as the only basis for their future study of surgery and medicine. Professor Haycraft, in his reply for the Mason College, endorsed Dr. Suckling's remarks, but claimed that at least equal attention to Physiology was necessary.—After this Mr. Lees gave an excellent song.—The rest of the toast list runs thus: 3. *The Professors:* proposed by Mr. Purslow, and acknowledged by Dr. Rickards.—Song, Mr. Rawlings.—4. *The General and Queen's Hospitals:* proposed by Mr. Cook, acknowledged by Messrs. Jolly and Bennett May.—Song, Mr. Evers.—5. *The Students past and present:* proposed by Mr. W. F. Haslam, acknowledged by Messrs. Jordan Lloyd and Dudgeon.—Song, Mr. Oldacres.—6. *The Visitors*: proposed by Mr. Oldacres.—Song, Mr. Lister.—7. *The Chairman:* proposed by Mr. Messiter. Dr. Sawyer, in acknowledging this toast, paid a great compliment to Mr. Messiter (the secretary to the committee), for energy displayed, not only in his professional duties, but also in arranging the present dinner.—Dr. Carter then gave another song, and the chairman vacated the chair. After songs from Mr. Priestley Smith, Mr. Jordan Lloyd, and several students, a very pleasant evening terminated.

QUEEN'S COLLEGE MEDICAL SOCIETY.

A special and general meeting of the above society was held in the Library of Queen's College, on Wednesday, November 28th; the President (Mr. Hugh Thomas) in the chair. The special business consisted in the consideration of a proposition brought before the society by Mr. J. Hall-Edwards, relative to the admission of honorary members. A lively discussion followed the reading of the proposition, most of the older members being strongly opposed to its adoption, and upon its being put to the meeting only nine votes were recorded in its favour, whilst sixteen voted against it.—Mr. J. Hall-Edwards exhibited a "double human monster," which excited considerable interest from the very numerous and curious malformations it presented.—Mr. W. B. Featherstone read a paper "On Popular Narcotics," a subject, which, as he pointed out, is of considerable interest to students in medicine. He said that the use of narcotics, not only as medicines, but as luxuries, extends back to the farthest antiquity. Herodotus speaks of the ancient Babylonians as smoking the leaves of a certain plant for the sake of its peculiar intoxicating properties, and Homer alludes to the poppy as being cultivated in gardens. He gave a brief account of the nature and properties of the more important narcotics, dividing them into two classes: firstly, those which are obtained from plants with more or less preparation; secondly, those which are obtained by purely chemical processes. As a type of the first class he took opium, first employed in medicine by Hippocrates, and he then reviewed the various ways in which this drug is taken by different nations, and considered its effects, both moral and social. He spoke of tobacco as the narcotic of the civilised world, stating that its use in moderation is followed by no evil effects, and that some writers have claimed that it is beneficial. "When I am ill," says Wilkie Collins, "tobacco is the best friend that my irritable nerves possess. When I am well, but exhausted for the time by a hard day's work, tobacco nerves and composes me." Mr. Featherstone then gave a physiologist's account of tobacco, and showed that the reason why the effects are not always produced is because the smoke contains but little nicotine, and that it is only when the plant is chewed that we meet with them in full effect. After briefly reviewing all the common vegetable narcotics used in different parts of the globe, he turned his attention to the consideration of the second class, taking chloral hydrate as the type. This drug is taken as a luxury by many in preference to opium, its after effects not being so disastrous. In conclusion, he stated that narcotics ever have been and are now being used over the whole civilised and uncivilised world; that by some writers they are regarded as necessities, instinctively selected, and chosen to meet human wants; others are content to defend them as simply adding to our stock of happiness; and, finally, there is an important class, of which

Dr. Richardson is a fair example, who think that their use, except as medicines, should be absolutely prohibited, as being the source of much present disease, and of future misery for countless generations. That they are not necessities is clear; that they are not, as ordinarily taken, dangerous poisons is certain. The medium view, then, is the one we should adopt, and while not endeavouring to convert those who find they are able to do without them, content ourselves with adopting that wise moderation and restraint in their use which should ever distinguish man as a rational animal. A lengthy discussion followed the reading of the paper, in which the following gentlemen took part:—The President, Dr. Nelson, Messrs. J. L. Thomas, J. Hall-Edwards, J. H. Harrison, and E. L. Freer.

J. HALL-EDWARDS, *Hon. Sec.*

THE UNION.

November 16th.—Mr. GREENE in the chair. Sixty-one members and sixteen visitors present. Two new members were elected. Mr. CULLIS then proposed, and Mr. EVANS seconded, the following resolution: "That, taking into consideration the resolution passed by their Committee with regard to the Magazine, the Union consent to accept the same as their undertaking." This being carried without opposition, the Chairman declared the Magazine to be the property of the Union, and not, as hitherto, that of the Committee. The "Critical Readings" were then given, the programme being as follows:—

Mr. EVANS	"Defence of Lucknow"	*Tennyson.*
Mr. GARDNER	Poem	*Lord Lytton.*
Miss C. M. ASHFORD	"But yesterday the word of Cæsar," &c.	*Shakespeare.*
Mr. B. JORDAN	"Ode to the Nightingale"	*Keats.*
Mr. PENN	"Godiva"	*Tennyson.*
Miss HADLEY, Mr. GREATHEED, Miss NADEN	Extract from "Light of Asia"	*Edwin Arnold.*

Mr. Evans's reading was felt to be spirited and appropriate. Mr. CULLIS followed with some remarks upon the subject of the poem, to the effect that while we all hoped for the extinction of war, there were disadvantages to the character of the human race attending its entire suppression. Miss STURGE praised the fitting energy of the delivery, but thought the softer passages might have been rendered more appropriately.—Mr. Gardner's *début* had in it the promise of future success.—With reference to Miss Ashford's reading, Miss NADEN required a more dramatic exhibition. Miss ALBRIGHT was inclined to keep excessive dramatic effects out of recitation. Mr. LOVE had seldom heard the piece read so successfully.—Mr. GREATHEED thought Mr. Jordan might fairly be complimented on a musical voice, and Miss STURGE praised the selection of the poem and complimented Mr. Jordan on his elocution.—Miss STURGE praised Mr. Penn's rendering of the "grim Earl," but thought his Lady Godiva was somewhat too argumentative, particularly in the line, "If they pay this tax, they starve." This

recital gave rise to the conclusion that the Midland Counties may aim at a medium between the extreme pronunciations of the north and the south.—The concluding item in the programme was looked forward to with some curiosity, it having been arranged that the same piece should be read by three students in succession. They selected the extract from the "Light of Asia," describing the grief of the mother on the loss of her child, and her appeal to Buddha for aid and comfort. Miss ASHFORD referred to the necessary difficulty of rendering a male part by a female voice, and *vice versâ*. Miss JORDAN joined in the criticism, and Mr. GROOM thought that each reader had well rendered different aspects of the incident.—Mr. W. R. HUGHES, who was present as a visitor, was good enough to exhibit a curious book, currently stated to be a "Buddhist Bible." It consisted of longitudinal strips of palm leaves between two loose pieces of wood, the whole strung upon cord so as to hang upon the shoulder. A friend at the British Museum has since reported on it as a Cingalese grammar of considerable interest.

Nov. 30.—Mr. GREENE in the chair. Mr. BARWISE brought forward a resolution, which was supported by Miss EVANS, in favour of the appointment of a secretary and treasurer to assist in the management of the Magazine. The resolution was carried with 43 votes in its favour. Miss Brierley was first proposed as secretary, but was obliged to decline on the score of engagements. Miss Charles was then proposed by Miss HUCKVALE, seconded by Mr. EHRHARDT, and unanimously elected.

Miss NADEN then brought forward a resolution that the issues of the Magazine should be reduced to six in the year. She mentioned the difficulty of obtaining materials for three issues per term, and pointed out that the expenses would be considerably lessened by the proposed reduction. The example of Owens College, which brings out only one number in each term, was also instanced.—This was supported by Mr. GREATHEED on similar grounds, and the letter of Mr. Neave Brayshaw, which appears elsewhere, was quoted as justification.—Mr. COOPER thought that reducing the issue might diminish the receipts more than the expenditure.—The resolution, was, however, carried unanimously.

The subject of debate was "That it is desirable to agitate against the tyranny of fashion."

Mr. BARWISE opened the debate. He began by referring to the fashion of drinking—drinking when a bargain was struck, drinking when a bargain was gained, drinking on all occasions. He said that when one man drank, others seeing him, felt compelled to do the same; so this practice of drinking together on all occasions became the fashion. It is a fact well known that men are all born with a tendency to imitate. Mr. Barwise then referred to the fashion of smoking. He thought it hard that though men were able to smoke pipes in secluded spots, fashion did not allow anything but cigars in public. After having dealt with the tyranny of fashion over men, Mr. Barwise said he should like to speak of the tyranny of fashion over women in the matter of dress, but he felt

that the subject was too great a one for him, and that he could not do justice to it. He spoke of colours in dresses, modes of make, shapes of hats, and modes of dressing the hair. Who is there who does not like toffee? But toffee for breakfast, toffee for dinner, toffee for tea, and toffee for supper—thus it is with electric blue. Electric blue in the morning, electric blue in the afternoon, electric blue in the evening! Women, if left to themselves, would each find out what suited them, and would adopt that style. Variety, which always has charms, would be gained by the abolition of the tyranny of fashion.—Miss NADEN defined fashion as a special aspect of public opinion. Agitation is not the easiest way of escaping from the so-called tyrant. We may transfer our allegiance from unenlightened public opinion to enlightened public opinion—from Philip drunk to Philip sober. After describing a typical young person with a wasp-like waist, who may be called rather a criminal lunatic than a slave, since her tortures are voluntary, she suggested education as a better cure for lunacy than agitation. There are two conceivable substitutes for fashion—fixed uniformity and unlimited individualism. The former would be too monotonous; the latter would afford too great scope for the display of bad taste. Fashion, indeed, might possibly smile on the insurrectionists, and then their reform would become a fashion like the rest. In the spheres of poetry and art, fashion is concentrative and directive, and prevents the young man from wasting mental energy in choosing a path before he has gathered sufficient data on which to base his choice. Mr. Barwise had shown that the tendency to imitate is innate; therefore it would be as absurd to agitate against fashion as against the law of gravitation. Miss Naden then read a passage from Herbert Spencer's "First Principles," pointing a similar moral.—Miss EDWARDS spoke of fashion as contrary to nature, to common sense, and to health. Fashion is made for man, not man for fashion. It governs the world, and being responsible to no other power, exercises boundless liberty. Since it is a product of human society, it might be expected to conform to the conditions of human welfare and of reason. But it is a pendulum which oscillates from one extreme to the other, but rarely enters the domain of common sense. Fashion is an unmitigated snob. The poor do their best to imitate the rich. There is no care for beauty or comfort, but only for novelty. In spring, when the country is beginning to be beautiful, people go to town for three months. Browning says, "Oh to be in England, now that April's there;" but we say "Oh to be in London, now that fashion's there." One woman has scanty hair, and is obliged to supplement her deficiency, and forthwith all the women with abundant tresses follow her example. Fashion has decreed that the heel should be as near the centre of the instep as possible, and you see ladies walking about with their ankles twisting all ways. A lady is subject to neuralgia, but fashion may command that she must wear a bonnet which exposes her face—and she obeys. In male attire, what can

be more absurd than stand-up collars and top hats? Fashion is not good for trade. Half the bankruptcies are caused by changes of fashion, which make goods no longer saleable. Beauty, variety, and economy may be gained by the proposed agitation. Let us be masters, not slaves.—Mr. COOPER said that those friends of Mr. Barwise who had lately found out that they did not like smoking probably only made the discovery because their constitutions had changed. Variety is not lost by fashion. As Miss Edwards had said, fashion *is* made for man. We must follow rules in all we do, and therefore fashion is natural. We do *not* see ladies walking down the street with their ankles twisting all ways. Trade is promoted by the circulation of money, and that money may circulate it must be spent. That it may be spent quickly, fashions must be quickly altered.—Miss PERRY said that fashion is active, not only in the sphere of dress, but of art. Genius distinguishes itself by not conforming to fashion. Of this rule Shakespeare is an eminent example.—Mr. BARRATT wished to support both sides. He approved the motion, because it is well to agitate against everything. But the agitation will do no good. He admired crinolettes, and thought that they improved the appearance of ladies. Perhaps people might be better for giving up smoking and drinking; but ——— The speech here came to an abrupt conclusion, dictated apparently by the blankness of the prospect.—Mr. SUNDERLAND remarked that educated people do not regard fashion.—Mr. SMYTHE asked whether educated people were to be untidy?—Miss BRIERLEY expressed her pleasure that Mr. Barwise had been sufficiently gallant to attack his own sex first. As to the bad habit of drinking, perhaps example might do more for its extinction than precept. The teetotal movement might be regarded as an agitation against fashion, but education was the true remedy. Perhaps fashion did well in suppressing clay pipes. As to monotony, gentlemen were supposed to be less under the influence of fashion than ladies, but did their dress show greater variety? If bankruptcies are caused by change of fashion, that shows that variety is not wanting.—Miss ASHFORD enquired how we were to agitate, and for what?—Mrs. SMITH observed that fashion cannot be called a tyrant, for it inflicts no penalties: it affords scope for the exercise of moral courage.—Miss EVANS said that individuality is confined to few, but that many can imitate. It is to the advantage of the latter to have an example which they can follow.—Mr. BARWISE, in reply, said that his opponents had really given him nothing to answer. He would pass over Mr. Cooper's remarks about spending money in silence. Miss Ashford's question was irrevelant. Miss Naden's description of the "criminal lunatic" told on his side. Let every one dress as he or she likes. The picture of the Piazza of St. Mark's, now being exhibited, shows the charms of variety in costume. Agitation against fashion will liberate the artist and poet from their slavery.—The resolution was now put to the vote, and the numbers were 22 for and 19 against.

OUR CONTEMPORARIES.

Our Magazine, hailing from the North London Collegiate School for Girls, is still somewhat sermonic in tone. The "Term's Motto," taken from Carlyle, points an antithesis between Would and Should, to the disadvantage of the former. But it seems to us that every Should must become Would before it can pass into Will, and thence to Deed. The description of voluntary educational work in London among women and girls is interesting. How were Would and Should related in the case of that marvellous washerwoman who studied Greek (let us hope not to the disadvantage of stockings and shirt-collars) from "pure love of knowledge"? The long translation from Chamisso speaks well for the German scholarship of the North London young ladies, and the list of examinations successfully passed by former pupils is exceedingly creditable.

The *Marlburian* contains an amusing paper on advertisements, matrimonial and otherwise, and a very intelligent report of a lecture on polypes. There is also a lively correspondence, which would have delighted the heart of Herr Teufelsdröckh himself, on the all-important question of "Clothes." The School bids fair to divide into two political parties, the Dandies and the Slovens.

The *Wykehamist* is this month depressing and pessimistic, and we rise from its perusal with a melancholy sense that life in Winchester is *not* worth living. The "Natural History Society" has died of ill-treatment and neglect, and there is even a dark hint that it may have been buried alive! This latter possibility, however, seems to be negatived by a suggestion that it may hereafter rise like the Phœnix from its ashes. The Debating Society suffers from the excessive modesty of its members, and perhaps from the over-developed critical faculty of editor and reporter. Still we must be permitted to note a somewhat ingenious argument used in the discussion on capital punishment—a characteristically gloomy subject. Three weeks only are allowed a condemned criminal for "spiritual regeneration," so that he is obliged to be prompt, whereas, if transported for life, he might be tempted to postpone his conversion *sine die*. We would further suggest that hanging the convert may be regarded as a truly philanthropic action, since it leaves no time for the relapse of his convalescent conscience; and that the successor of Marwood should hereafter be distinguished as "Defender of the Faith."

We turn with pleasure from these grim cogitations to the pages of the *Haileyburian*, which is considerably brighter in tone. Yet even here we find traces of the depravity of human nature, for the Editor pathetically complains of the "dishonesty" and "want of patriotism" of members of the school who have promised —but only promised—to purchase copies of certain "Haileybury Verses." "The Elm Tree" is a pretty bit of poetical prose, and

the article on "Slang" suggests an interesting branch of philological enquiry. The "Battle of Hastings" is a ringing and spirited ballad.

The *University College School Magazine* joins the chorus of lamentation. Contributions are few, and the Debating Society has fallen off. Still there are gleams of sunshine: the Scientific and Musical Societies flourish, and there is much to be said about Cricket and Fives. The magazine also contains a thrilling story of a ghost who went out to service.

The *Reptonian*, so says its Editor, is but seldom criticised by contemporaries. So far as we have observed, the Review department is somewhat neglected in School and College Magazines. It would surely be well that both editors and readers should know more of, and take a greater interest in, ventures similar to their own. The Repton Debating Society seems prosperous. We observe that each member is required, on pain of expulsion for the remainder of the term, to be present at every meeting, to speak at least twice in every three debates, and never to read his speech.

The *Institute Magazine* for November has only just been received with the December number. In the former we note an appreciative article on Shakespeare's "King Henry V.;" in the latter, we are chiefly attracted by several gracefully written poems, including a Christmas song, translated by C. E. B. from the German of Luther.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: the names will not necessarily be published, but are required as a guarantee of good faith on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Dear Madam,—There has been some complaint made that this Magazine is not of sufficient general interest. It has been suggested to me that a competition would be of use in making it more so, and the great successes achieved by other magazines and periodicals bear out this idea.

One paper, indeed, is practically carried on on this plan alone. Of course I refer to *Tit-Bits*, and its Editor offers, as the prize for the Christmas competition, a seven-roomed house. I need hardly say that this Magazine could scarcely aspire to such heights as this, but we never know what may come in the future. There are many subjects for competition already much used, such as algebraical problems, essay writing, question answering, &c., and indeed a literary competition of some sort must be the one, if any, chosen.

It need not necessarily be a prize competition, though this would of course increase its popularity. The funds might be contributed as an entrance fee by the competitors; or, again, the prize might be a copy of each issue of the Magazine for twelve months. These are merely suggestions as to the manner of procedure, and if none of them were carried out the original plan of the competition might be considered.—I remain yours truly,

A CONSTANT READER.

To the Editor of the *Mason College Magazine.*

Madam,—I write to ask whether the officers and members of the Union cannot make some move to prevent the discomfort of many, caused by talking and laughing by some, all through the meeting?

At the meeting for "Critical Readings," I and three friends with me—and, I doubt not, many others—were considerably annoyed by a continual buzz of conversation being kept up, whether the readings were going on or whether criticism was being made.

After sitting still for some time, hearing neither the readings nor the

interesting (?) conversation carried on near us intelligibly, we moved our seats.

No doubt we made some noise in this movement, but it was, to say the least, trying, to be told to "'sh, 'sh" when we had sat quietly for some time, longing to give utterance to our feelings, while no notice was taken of those who had really disturbed the meeting.

Surely, after the time allowed for conversation during tea, those who attend the Union meetings might, if only for the sake of politeness, listen to what others have taken the trouble to prepare for them.

I must say I was thoroughly ashamed that the readings, which were so excellently given, should have been received by some as they were.

I am, yours faithfully,

F. L. R.

[We had not ourselves noticed the inconvenience of which the writer complains, but if there be offenders they will no doubt take the remonstrance to heart.—ED.]

To the Editor of the *Mason College Magazine*.

Madam,—The article entitled "Robinson Crusoe, B.SC.," which appeared in the last two numbers of the *Mason College Magazine*, has an important bearing on scientific education, as it is at present conducted. The writer has evidently attended classes in mathematics, physics, physiology, biology, and botany, and in addition has worked in a physics laboratory—all presumably at Mason's College. And yet, after all this extensive course of "study" he shows himself to be a wretched trifler. He looks upon scientific knowledge as sham, and hypotheses as tomfoolery. He is not devoid of ability, but his "studies" have consisted chiefly of cram, which is unfortunately very difficult to avoid. If he had ever realised the scientific ideas he treats so lightly, he would be far above such contemptible frivolity. It is the more to be regretted because the object of Mason's College is to produce truly scientific men, whose knowledge will be of use to them.

I suggest that we students should discuss the cause of this failure of scientific education in the pages of the *Mason College Magazine*.—Yours truly,

J. O. W. BARRATT.

[Would our correspondent admit the following syllogism?—

All mundane matters are subjects of science;
No subjects of science are matters of humour;
∴ No mundane matters are matters of humour.

We ourselves are more inclined to revive the Court jester, or to advertise for a Touchstone in the *Daily Post*, than to discourage any who are good enough to make us laugh.—ED.]

NOTICE.

During 1884 it is proposed to publish the Magazine twice during each term. In the Spring term it will appear on the 20th of February and the 20th of March.

It will be published at Messrs. Cornish Brothers, 37, New Street, and at the College Library, where copies can be obtained.

The price of each copy will be 6d. The yearly subscription will be 3s.; post free, 3s. 3d.

New subscribers are requested to give in their names at once to the Editor, or to any member of the Union Committee. Subscriptions to be paid (by postal order if possible) to one of the Editors.

All communications to be addressed to the Editor, at Mason College.

ERRATA.—Page 194, 29th line, omit "preposition"; page 201, 3rd line, for "Genge" read "George"; page 201, 17th line, for "Culeæ" read "Culex."

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JOHN HENRY CHAMBERLAIN,

ON MONDAY EVENING, OCTOBER 22nd, 1883.

"A deeply interesting memorial of Mr. Chamberlain has just been published—the full text of his last lecture on 'Exotic Art,' edited from the author's own manuscript notes by Mr. Arthur B. Chamberlain, his eldest son. It is issued in pamphlet form by Messrs. Cornish Brothers, New Street, and is printed and ornamented in a manner altogether worthy of the memory it reveals and the matter it contains. The covers of the work are from Mr. John Henry Chamberlain's own designs; the frontispiece is a *facsimile* in colours of the last Christmas card he issued; and opposite the preface is printed a sonnet—a very touching one—he wrote so lately as last April. Many of Mr. Chamberlain's friends will be glad to possess this memorial of him."—*Birmingham Daily Post*, November 8th, 1883.

"Messrs. Cornish Brothers, of Birmingham, have just published the last lecture delivered by Mr. J. H. Chamberlain on 'Exotic Art'—a lecture which possesses a melancholy interest, inasmuch as the lecturer died very shortly after it was heard from his lips in the Midland Institute. The lecture is given very fully, and is an exquisite specimen of neat and beautiful typography."—*Birmingham Daily Gazette*, November 8th, 1883.

"Mr. Chamberlain's last lecture—that on 'Exotic Art'—has been published from his notes, with a preface by his eldest son, Mr. A. B. Chamberlain. It is exquisitely got up by Messrs. Wright, Dain, Peyton, and Co., and contains a colour-print of the last Christmas card Mr. Chamberlain designed. In all respects the production is a graceful and artistic souvenir."—*Birmingham Daily Mail*, November 8th, 1883.

BIRMINGHAM:
CORNISH BROS., 37, NEW STREET.

THE

MASON COLLEGE MAGAZINE.

CONDUCTED BY THE STUDENTS.

VOL. II.

1884.

PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

Copy No. 16,
Mrs. H. Cox,
Edgbaston,
Birmingham, Eng.

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PRICE SIXPENCE.

Vol. II. No. 1

THE Mason College Magazine, BIRMINGHAM.

EDITED BY THE STUDENTS.

FEBRUARY, 1884.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

PRINTED BY ROBERT HOWELL, 31½, BROAD STREET.

MESSRS. MACMILLAN & CO'S. LIST.



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MACMILLAN & CO., BEDFORD STREET, LONDON.

Mason College Magazine.

(Edited by Students of Mason College, Birmingham.)

No. 1, Vol. II. **FEBRUARY, 1884.** Price 6d.

CALENDAR.

Feb. 21st.—Thursday—Microscopical Society—Sociological Section. Paper by Mr. W. W. Collins on Part II of "Principles of Biology."

,, 22nd.—Friday—Union Meeting. Papers: "Feathers," W. A. Evans; "Photography," O. Sunderland.

,, 23rd.—Saturday—Founder's Birthday.

,, 26th.—Tuesday—Microscopical Society—Geological Section. Photographs of Kimberley Diamond Mine exhibited by Messrs. Marshall and Levick.

March 7th.—Friday—Debate, "That the Nationalization of Land would be beneficial to this country."

SCHILLER AS A PHILOSOPHIC POET.

Poetry is generally conceived by metaphysicians, scientists, and grave men of every description, as a trembling Peri, who may stand at the closed portal of serious thought, or perhaps peep in, catching a gleam of glory upon her wings, but can never hope to enter and take her place in the philosophic Paradise. And yet emotion, of which Poetry is the chosen guardian and representative, is as indispensable a part of life as reason itself, and supplies data which cannot be neglected in any synthetic view of truth.

The task of showing scientific and philosophic conceptions in an emotional light is performed most effectually, not by the rigorous thinker, with his weighed words, his definite and colourless phraseology, his analyses, exact but uninspiring, his syntheses, where the muscles and bones of the organic framework are accurately jointed together, and only life is absent; it is best performed by the poet, whose music, as the voice of his dominant ideas, coloured by their corresponding feelings, is fitted to prolong in the mind of the world the echoes of those harmonies which are generated in his own mind. The union of seer and singer in one personality is, indeed, sufficiently rare; but now and then a twy-

souled mortal is born who possesses both vision and voice. Such a mortal was Schiller.*

Of his dramas and of his prose writings I shall not here attempt to speak, but shall only make a few more or less desultory remarks upon the line of thought which runs through his shorter poems. The few specimens which I have tried to clothe in an English dress give but little idea of the beauty and grace of the original; but in all cases I have endeavoured to preserve their significance intact.

The evolution of Schiller's mind may be briefly described as a progress from revolt against what seemed an external Chaos, to content with an internal Cosmos; from wild desire that the world should be turned upside down, to recognition of the fact that the world always appears the right way up to those who can keep their own equilibrium. The motto of all his later work might well have been—"For the kingdom of Heaven is *within* you."

His earliest poems, not, for the most part, incorporated in any edition of his works, appeared in the *Suabian Magazine*, when he was about seventeen. The Duke of Wurtemburg's Military Seminary owned no College Magazine, to which the young medical student could confide his effusions; indeed the good, but not over-enlightened or over-liberal Duke would doubtless have been horrified by the bare idea of such a safety-valve for the steam of youthful ambition, and perhaps of youthful discontent. But though these verses are lost, we have others of a somewhat later date which are pervaded by a sense of the dark mystery of life, and by a craving for some happy solution, to be reached here or hereafter. This is especially characteristic of the group of poems addressed to "Laura," where we occasionally find some indications of that interest with which he at one time devoted himself to the study of medicine,† and a few attempts, not followed up afterwards, to treat scientific facts poetically. The *Fantasie an Laura* gives instances of this:

Thirstily each planet-globe revolving
  Drinks the sunlight's golden rain;
Life it quaffs from out that fiery goblet,
  As the limbs draw vigour from the brain.

Every atom seeks its kindred atom;
  Linked in friendship firm and sure;
Love unites and guides the spheres of heaven,
  Constellated worlds by Love endure.

* Uebebweg, in his *History of Philosophy*, speaks of Schiller as "the most gifted of all the Kantians."

† "At one time I studied medicine *con amore*."—Letter to Schwann.

Love, in the inner world of the soul, plays the same part which is played by the attractions of cohesion and gravitation in the great outer world, directing towards one object opposite feelings and desires. Mirth and pain, hope and despair, melancholy and delight—all are mystically united. Then come certain strained, yet not unbeautiful, analogies between these relationships and the links of cause and effect which bind in "fearful sympathy" sin and repentance, good fortune and envy, voluptuous pleasure and death. The Future, too, is ever hasting on the wings of love towards the Past; the time-god Saturn is ever seeking his bride, Eternity.

Saturn—so the oracle forewarns me—
Shall at last prepare his bridal bed;
Worlds shall flame as hymeneal torches
When Eternity with Time shall wed.

Through the erudities of this poem runs an intuition of the organic connection which exists throughout Nature, and a tendency to trace all phenomena to one general law. Darker contemplations, and a feeling of the deep contrast between the real and the ideal, inspire such pieces as the *Melancholie an Laura* and the *Leichenfantasie*; but the *Secret of Reminiscence* is perhaps better adapted for quotation. Here the lover ascends the stream of philosophy, and borrows from Platonism. The following rendering is of the nature of ground glass—translucent, but not wholly transparent. Light is transmitted, but only faint indications are given of details of form and colour:

Tell me why our hearts should throb and glow?
Were our natures mingled long ago?
In the light of some extinguished sun,
In some day of rapture, long outrun,
Were we two but one?

It is written on a mystic page
That in blended life through many an age,
We, a God, a vivifying Soul,
Ruled the worlds, and swayed by our control
The unbounded whole.

Laura, weep! This God has perished now,
We are but his ruins, I and thou;
Yet insatiate thirst is thine and mine,
These dissevered fragments to combine
In one life divine.

The *Philosophical Letters*, saturated with desire for the discovery of some rationale which shall unite the psychical and the physical, contain some beautiful prose passages and fragments of poetry, foreshadowing ideas afterwards more fully developed. Love is identified with Life, since it involves extension of our own

nature by sympathy with other natures. Hate involves privation, and is a slow suicide. If a man stood solitary in creation, he must yet dream souls in stones, and find sympathy in echoes. This corresponds with the application of the Pygmalion myth, made later in the poem called *Ideals*, where a lament for the death of the fair creations of youthful fancy passes into an impassioned description of their origin:

Quenched are the suns whose joyful lustre
  Across the road of youth was cast,
And banished all the fair ideals
  That fired the rapt enthusiast.
Dead is the faith in sweet illusions,
  Beings that in my dream had birth,
And reft away their godlike beauty
  By rude realities of earth.

As once, with ardent supplication,
  Pygmalion clasped the sculptured form
Until the pale cold cheeks of marble
  Flushed with emotion, bright and warm;
So I, aflame with youthful passion,
  Dead Nature to my bosom pressed,
Till she to breathe, to glow, to tremble
  Began upon my poet-breast.

Till, kindling to my fiery impulse,
  At last the Dumb her silence broke;
With answering love gave back my kisses,
  And understood my heart that spoke.
The tree, the flower for me had voices,
  For me the silver fount could sing;
I felt my life's re-echoing music
  Give soul to every senseless thing.

A universe of mighty yearning
  Throbbed in my bosom's narrow bound;
To issue forth, to live incarnate,
  In deed and word, in shape and sound.
How great this world, how nobly fashioned,
  While yet the bud ensheathed it all!
How few, alas! the opened blossoms,
  And even these, how weak and small!

The loss here lamented was, as we shall see, more than compensated by a glorious resurrection. In another passage of the *Philosophical Letters* Nature is defined as "an infinitely divided God," and an illustration is drawn from the analyzed sunlight of the spectrum. The idea here hinted is carried out at the conclusion of the long poem entitled *The Artists*, but an instructive difference is apparent in the application of the simile. The prismatic colours are now the varied effects and methods of art, and the white light is the highest and most permanent ideal of Beauty and Truth which the human mind can find, and which retains its

general outlines throughout the changing play of temporary ideals. This variation is typical of the course of Schiller's thought, which more and more consoled itself for the lack of objective reality in its brightest visions by dwelling on their undeniable subjective reality; just as the child earnestly inquires whether the story is "all true," while the man is satisfied with well-drawn characters and a congruous plot. These are the lines:

E'en as the pure white beam from heaven
  Breaks in the rainbow's sevenfold light,
And as the rainbow-colours seven
  In stainless sunshine all unite,
So ye who please by bright disunion,
  Whose thousand glories glance and gleam,
Truth joins you all in one communion,
  Ye blend in one uncoloured beam!

Resignation, written about the same time, is of great but untranslatable beauty. It begins somewhat as follows:

I, even I, in Arcady was born;
  There in my infant ears
Fair nature whispered joy, with lips forsworn;
  I, even I, in Arcady was born,
Yet the short Spring has brought me only tears.

* * * * * * * * *

I stand already on thy bridge of night
  O dread Eternity!
This sacred title to unclaimed delight,
Joy that I know not yet by touch or sight,
  Inviolate I bring to thee.

Thou, veiléd Judge, hast heard me from afar;
  Before thy throne I fall.
Men told a gladsome tale in yonder star
That all were summoned to thy righteous bar,
  That thou shouldst weigh the deeds of all.

* * * * * * * * *

Here should the martyr find a thornless bed,
  The exile gain his native land;
There came a daughter of the Gods—some said
Truth was her name—few sought her, many fled;
  But on my life she laid her curbing hand.

She spoke—"I will repay thee all in heaven,
  Render me up thy youth;
Nought, save this promise, can on earth be given
I took the promise of a future heaven,
  And all my joys I yielded up to Truth.

"Give me the woman dearest to thy heart—
  Thy Laura—for in sooth
Beyond the grave I will reward thy smart;"
I tore her bleeding from my anguished heart,
  And wept aloud, and gave her up to Truth.

"The serpent-swarm of mockers" deride his renunciation. They ask:

What is this Future, hidden by the tomb?
  Eternity—thy last, thy dear resource?
Revered because so deeply veiled in gloom;
The giant spectre of a fancied doom,
  Seen in the concave mirror of remorse.

A mockery of life, a lying wraith,
  The mummied corse of Time,
Kept ever in the chilly homes of death—
Oh feverish dreamer! by Hope's balsam breath:
  Is this thine immortality sublime?

But he has maintained his faith, and now demands a recompense for relinquished joy. The answer comes from an unseen Genius. Two flowers, Hope and Enjoyment, bloom for the sons of men. Let not him who has plucked one of them desire the twin blossom. The world's history is the true Last Judgment.

Thy life-long hope has paid thy labour's worth,
  The joy of faith was thine appointed lot.
Ask, if thou wilt, the wise ones of the earth:
Who robs the passing moment of its mirth,
  Eternity repays him not.

A similar spirit of unwilling subjection to conditions which necessitate self-denial and the sacrifice of daily pleasures is evident in the *Gods of Greece*, perhaps best known to English readers by Mrs. Browning's poetical protest against its teaching. The loss of the Greek gladness and delight in existence, the stripping from Nature of her life and divinity, the substitution of blind force for living will, are the burden of the complaint.

The wonderful *Song of the Bell* and the *Walk* are miniature panoramas of human life; microcosmic poems, giving a whole world in small compass. The latter begins with lovely pictures of meadow, woodland, mountain, and river scenery, and then passes to the life of man, rustic and urban. The evolution of society through periods of war, commerce, art, science, philosophy, is briefly and powerfully portrayed. Here is the age of Science:

* But in his quiet chamber, designing circles symbolic,
Thoughtful the wise man sits, and proves the workings of mind,
Tests the forces of matter, the hates and loves of the magnet,
Following sound through air, through ether following light,
Seeking in marvels of chance the definite law that directs them,
Seeking 'mid whirling events the one immovable Pole.
* * * * * * * * * * *
So to the wondering gaze dissolves the mist of illusion,
So shall the phantoms of night cede to the dawning of day.

* Readers are requested to deal gently with these hexameters and pentameters. The article was so hastily written that it was not possible to obtain efficient surgical aid for the poetical cripples.

But with the triumphs of reason comes the too indiscriminate craving for liberty, and wild desires join in the cry. The foundations of truth seem shaken; even conscience, the inner God, falters and fails. Then comes an age of shams, then a revolution. The people rise in the wrath of misery and seek lost Nature in the ruins of cities. From these forebodings the poet returns for comfort to the lovely scenes around him. Man's will and man's action are in a state of perpetual flux, constantly changing their form and their purpose.

> But for ever young, in ever varying beauty,
> Thou, O, Nature, dost keep the ancient, reverent law;
> Ever the same, for the man in faithful hands thou art guarding
> All that the frolicsome child, or the stripling gave thee in trust.
> Thou from the self-same breast feedest the multiform ages;
> Under the self-same blue, over the self-same green,
> Wanders each new generation, the near and distant united,
> And the sun of Homer, behold! it smiles upon us.

But it is in *Life and the Ideal* that Schiller has expressed his genius most fully, embodying in lovely metaphor and rhythm the essential significance of his beautiful essay *On the Sublime*, and of his more closely reasoned but somewhat tedious *Letters on the Æsthetic Education of Man*. The seemingly arid Kantian philosophy here blossoms as the rose. But unfortunately this is the one among his poems which, from its exquisite charm of language and rhythm, suffers most by translation; and a prose paraphrase seems almost a profanation. I can therefore give only a meagre outline, leaving the delicate lights and shadows to the imagination or memory of my readers. The first stanza runs somewhat as follows:

> In Olympus, for the blessed ones
> Zephyr-light, Life's river runs
> Ever clear and calm and crystal pure;
> Moons may wane, and nations leave no sign,
> But the roses of their youth divine,
> Changeless 'mid the wreck of worlds endure.
> Peace of soul or pleasure of the senses—
> Such the doubtful choice that Heaven allows
> Unto mortals; but a twofold lustre
> Beams upon Olympian brows.

Since the fetters of time and space bind only Matter, while the pure Form wanders "Godlike among Gods," the only Heaven accessible to man is to be found within himself: it is the "realm of the Ideal." The noble ends which the hero vainly seeks to embody in action, the fair forms which rise spontaneously in the

mind of the artist, but can be shaped only with infinite labour in the "stubborn grain" of the marble, the principles of truth and righteousness which shame our faltering practice—all are here. Ascend from the kingdom of deed to the kingdom of thought, as Alcides from bitter earthly servitude to Olympian glories, and the antinomies of life disappear. The laws of your ideal world, including all essential truth, must include the laws of the universe. Conform your being to these, by recognising them as parts of your own nature, and they will no longer appear as restraints upon free-will, but as its natural expression. These conclusions are daringly expressed in the eleventh stanza:

> In the bounds of sense no more confined,
> Seek the freedom of the mind;
> See the dreaded phantoms all are flown,
> The abyss eternal thou canst fill:
> Take the Godhead into thine own will,
> And he abdicates the cosmic throne.
> Only for the slave who scoffs at reason
> Has the law a fetter and a rod;
> When rebellious man has ceased from treason,
> Ceases too the majesty of God.

Many of the finest of Schiller's shorter poems I have no space to mention. *Light and Heat* ends with the pregnant lines—

> Choose thou of each the nobler part,
> The worldling's eye, the enthusiast's heart.

I conclude with a few specimens of his epigrams:

> Seek'st thou the Highest, the Greatest? Then go to the flower for instruction.
> What, unwitting, she is, be thou with conscience and will.

> Dost thou shrink from death! Dost long for Life never-ending?
> Live in the general life, that long outlasteth thine own.

> See, where'er thou dost roam, thy Zenith and Nadir unite thee,
> That to the highest heaven, this to the axis of earth;
> So, whene'er thou dost act, let thy will point upward to heaven,
> While through the axis of earth passes the line of thy deed.

C. C. W. N.

NATURAL SELECTION AND DEGENERATION.

Imagine "a figure somewhat plump and full, with soft limbs, covered by a fair thin skin showing blue veins beneath it." Picture to yourself "delicate refined features, a brilliant transparent rosy colour of the cheeks, contrasting strongly with the surrounding pallor." Complete the sketch with "large humid hazel or dark blue eyes, with full and sluggish pupils, sheltered by a fringe of long and silken lashes; a profusion of fine auburn or blonde hair; teeth of a pearly whiteness and a brittle character." An individual in short possessing "considerable beauty." *

The picture presented one might imagine to be that of the heroine of a three-volume novel; by "considerable beauty" we mean a face and figure which would cause the possessor to be selected by the opposite sex in preference to rivals who *cæteris paribus* did not possess such an appearance.

Yet such is the description of an individual who has inherited the sanguine type of the scrofulous constitution or diathesis. Such persons are particularly prone to a peculiar degeneration of various tissues, leading to consumption, and diseases of the bones and joints; they are frequently subject to disorders of the digestive apparatus, chronic ulceration, and other evils.

The question now arises—How is it we have not in the process of our development learnt to look upon individuals having a type of feature and complexion associated with such disadvantages as not being fit for selection, to consider them in fact as ugly?

Several theories present themselves to account for this apparent exception to the law of evolution.

The first is, that the appearance somewhat simulating one of health, there is a kind of protective mimicry.

Just as a perfectly harmless frog assumes the colour of a poisonous relative to protect itself from its enemies, as insects assume the shapes of leaves, and birds the colour of the heather to avoid detection, so the only chance of survival open to scrofulous subjects has been to wear the most approved shape—and whilst those who have managed to assume an appearance of health have continued to exist, the rest have died out.

Or it may simply be that the struggle for existence has been so keen amongst scrofulous subjects, that all except those who have

* The description is taken from the article on "Scrofula" by W. S. Savory, F.R.S., in *Holmes' System of Surgery*, Vol. I.

possessed considerable personal beauty have become eliminated, and they of course would survive the longest.

Another theory is that natural selection does not hold good with civilized man, having been much modified by intellectual considerations. We know that when actions which are normally reflex, are brought under the influence of the will, they are not performed with the same exact regard for law.

For instance, a pianist, when giving a recital, does not stay to think of the sequence of the chords, of the contractions of his muscles and the movements of his fingers as he strikes the notes, and of a hundred necessary physiological processes; of some of these he is probably ignorant; some he has thought out before; he simply repeats reflexly the lesson he has learnt, just as a parrot talks, or a clever pig performs a dance. Nor indeed would he play with half his present perfection if he brought his higher nervous centres into use at the time of his performance.

Now selection is in the lower animals an entirely reflex action, and it is the same in the case of man when in a state of savagery. But in civilized society selection is not the same simple process. A whole host of considerations arises: intelligence, beauty, social position, accomplishments, wealth, pity, sympathy, convenience, obstinacy, and mere wanton wickedness, are some of the commonest.

Just as the pianist's recital was worse when he brought his mind to bear on the many complex physiological processes required to play a bar, so the interference of the higher nerve centres with an action which was originally merely reflex, may have caused natural selection to fail in exterminating the scrofulous diathesis.

For instance, scrofulous subjects with money, social position, refinement, and pretty faces, would survive rather than healthy individuals without these advantages, and such instances are obviously the outcome, not of reflex selection, but of calm consideration.

But what of the future; by what means can this diathesis be exterminated?

By thoroughly appreciating that we have the development of our species, as much as the cultivation of orchids, in our own hands, by impressing on every one his duty to posterity, by bringing children up in the light of the gospel of Darwinism, by spreading broadcast throughout the land the truths of Evolution.

YENDIS.

THE UNION.

Dec. 14th.—Mr. G. St. JOHNSTON in the chair. Sixty-three members and ten visitors present.

Mr. BARRATT read a paper on "Gray." The poet was born in London in 1716, and educated at Eton and Cambridge. His mother, a milliner in Cornhill, paid his expenses at school and college. At Cambridge he felt no interest in the lectures, but studied Greek and Latin literature by himself. After leaving college, he travelled on the continent with Horace Walpole, staying in Paris, where he went much into society, Rheims and Dijon, where he studied art and architecture. In a letter written after crossing the Alps into Italy he expresses himself more astonished by the works of nature than by those of art. He was the first discoverer of the picturesqueness of Switzerland. On returning to England, he settled with his mother at Stoke Pogis, where his tragedy *Agrippina*, the *Ode to Spring*, the *Eton Ode*, and the *Hymn to Adversity*, were written. He then paused in his literary activity for five years, but the death of an Eton friend occasioned the composition of the *Elegy in a Country Churchyard*, which was not finished till 1749. Mr. Barratt then read the first version of the poem, differing somewhat from its later form. Gray calls himself in the sonnet prefixed to his works a "lonely man," and expresses contempt for the multitude. He suffered much from ill-heath, and required a motive to sustain him, which he found in his poetry and scholarship. After leaving Stoke Pogis, he went to live at Cambridge, and in 1768 obtained the position of Professor of Modern History. He took much interest in Icelandic and Norwegian poetry, and the fruits of his reading are shown in the *Descent of Odin*. He died in 1771.—A discussion followed, in which Mr. Love, Miss Naden, Mr. Greatheed, Mr. Penn, and Mr. Ogle, took part.—Mr. LOVE instanced Spinoza, Kant, and Darwin, as proofs that ill-health did not render life motiveless.—Mr. GREATHEED added Carlyle, Cowper, and Newton, and thought that the motive might sometimes occasion the ill-health. —Mr. PENN narrated a practical joke played on Gray at Cambridge.

Mr. OGLE then read a paper upon "Swedenborg." After giving a list of books in which the subject might be studied, Mr. Ogle said he imagined that most of his hearers were indebted to Emerson's *Representative Men* for an introduction to the great mystic, and proceeded to give a brief account of his essay on Swedenborg.

Mystics, he says, are dearer to men than poets or philosophers, but in their lives we must expect signs of the cost of their ecstacy; Swedenborg is the most remarkable example of the "introverted mind." He undeservedly praises Swedenborg's scientific works, which were first printed in 1734-44, were neglected for a century, and then translated and edited by a Mr. Wilkinson, of London, but the second attempt to publish them failed more signally than the first. Swedenborg assumed premises and attempted to bring them to their logical conclusions. They contain, indeed, happy inspirations fitting in with modern ideas, but valueless apart from subsequent scientific investigation and theory. At the age of 54 he decided he was an abnormal person. He saw not abstractly but in pictures. From this time his mind seems to have been deranged at least on one point permanently. Emerson says that to those who can make due allowance for peculiarities the results are a more striking testimony to the sublime laws enunciated than any balanced dulness could afford. But if flowers of thought occur in the tangled garden of Swedenborg's imagination, they might be more readily found elsewhere. A happy adjustment of heart and brain was wanting, the brain, jealous of the heart and conscious of its disorder, distrusted itself. The strong personality, nationality, and prejudice of his revelations, relegate them from the supernatural to the natural world. He was a seeker, not a finder. In concluding, Mr. Ogle read some passages from William White's *Life of Swedenborg*, which related to his behaviour at the turning point of his life, and which were full of interest.

A discussion followed, in which Miss Hadley, Mr. Greatheed, Mr. Barratt, Miss Albright, Professor Smith, took part.

A vote of thanks to Messrs. Barratt and Ogle was then moved and seconded.

January 18th, 1884.—The first meeting of the term was devoted to the reading of the *Merchant of Venice*, and was, on the whole, a decided success. Miss Hadley's unavoidable absence was much regretted, but the part of Portia was read so ably by Miss FANNY HADLEY, that the enjoyment of the evening was in no way marred.

Miss BRIERLEY and Miss RUBERY also threw the needed vivacity and energy into their words, and formed a good contrast to the scowling, deliberate style of Shylock, whose character was capitally sustained by Mr. GREATHEED. To the few who were then aware of Mr. Greatheed's intended departure from Birmingham, it was

an especial pleasure that he should thus, once more, appear before the Union.

The youthful hopefulness and enthusiasm of Bassanio were well brought out by Mr. B. JORDAN, to whose clear strong voice it was a pleasure and relief to listen, especially when seated at the back of the hall.

Mr. BARWISE had evidently worked up his part carefully, if we may judge from the successful way in which he threw himself into the character of Antonio.

Our space forbids detailed criticism of the other readers, although we have nothing but praise to offer to Mr. SMYTH and Mr. EHRHARDT for their humorous rendering of the parts of Launcelot Gobbo and old Gobbo; and to Mr. MARTEN for the buoyant and amusing way in which he read the part of Gratiano.

The song, "Tell me where is fancy bred," was prettily sung, as a glee, by several of the members.

Music, in an unexpected form, was also introduced in Act V, Scene I, for, during the allusions of Portia and others to the "concord of sweet sounds" and "the power of music," their words were appropriately emphasized by the strains of a festive barrel organ in the street below!

The proceedings were brought to a close with a speech by Professor ARBER, in which he expressed his cordial thanks to the readers for the trouble which they had taken; and also the hope that the plan of reading Shakespeare in this way might become a permanent and annual institution in the Union.

January 25th.—Mr. GREENE in the Chair. Thirty-eight members and four visitors present. Six new members were elected.

Mr. GROOM began by explaining that by the Relations between Plants and Animals he meant their mutual influences, and that from animals he excepted one, namely man. First it is necessary to know what is the difference between plants and animals. This is easily seen in highly developed organisms, but when dealing with simple forms a distinction is impossible. Any definition of a plant founded on its possession of chlorophyll is nullified by the presence of chlorophyll in many animals. In the process of respiration animals give out carbonic acid, which plants, in the presence of light, use for food by means of their chlorophyll. Some lower animals, such as a worm named *Convoluta*, possess chlorophyll, and hence they are able to live on the carbonic acid they give out. In nutrition plants are of great importance to animals, as all but

the chlorophyll-containing animals are ultimately dependent on plants for food. Changes of coloration may be due to an animal's change of diet. Bullfinches become black when fed on hemp seed; changes of structure are also caused by change of food. The fertilization of plants is brought about by insects which are attracted by the beautiful colours and scents of flowers. There are many contrivances in plants to prevent the pistil of one flower from being fertilized by pollen from the same flower. The wind and insects act as carriers of pollen.

The white *Lychnis vespertina*, which is fertilized by night moths, is conspicuous in the evening, and its scent is only then perceptible. *Aristolochia* is another interesting example. The pollen-bearing insects too are especially adapted for the purpose. Some plants devour animals, which cases Professor Hillhouse described in his paper on "Carnivorous Plants." Other plants are parasitic on living or dead animals, and this leads to the connection which Bacteria have with epidemic diseases in ourselves. Observations have been made which give contradictory results. We may inoculate ourselves with certain Bacteria known to be present in special diseases, and no evil result follows; at the same time Pasteur's experiments seem to show that the Bacteria are in some way the cause of disease. Animals imitate the colours and even shapes of parts of plants, and the inconspicuousness thus caused affords them protection. The Highland ptarmigan in summer is green, while in winter it turns white. The Indian leaf-insect is almost exactly like a leaf. In concluding, Mr. Groom gave illustrations of the practical importance of this subject, and said that its theoretical importance consists of the arguments which it supplies in support of evolutionism.

In the discussion which followed, Mr. BARWISE claimed for the medical profession a superiority over botanists in respect of the study of Bacteria, and gave an account of the experiments conducted by Lauder Brunton and others by which the relation of Bacteria to zymotic diseases has been ascertained. It is found that no result follows when the living germs are introduced into healthy tissue; but when the liquid containing them is boiled and injected, septicæmia follows. The excretions of Bacteria have been analyzed, and found to contain leucin and tyrosin, and these compounds, when injected, also produce septicæmia. The inference is that disease is produced by these excretions, and that Bacteria require a *nidus* of dead tissue in which to carry on their functions.—Mr. LOVE inquired

whether any explanation could be given of the fact that chlorophyll is sometimes found in the livers of molluscs.—Mr. GREATHEED thought that leaf insects and others who spend their lives in pretending to be what they are not, must suffer from a sense of moral deterioration, supposing, as we may suppose from analogy, that they possess the rudiments of moral consciousness.—Professor HILLHOUSE thought that the connection of Bacteria with disease was not yet satisfactorily settled, and that the medical profession had little to boast in this respect, fewer facts being wanted, and more inferences from facts. The presence of chlorophyll in the livers of molluscs might be owing to their vegetable diet. He complimented Mr. Groom on his very able and interesting paper, and congratulated him on the exhibition which he has recently gained at Trinity.

The CHAIRMAN then called on Miss Donkin to move, and Mr. G. St. Johnston to second, a vote of thanks to Mr. Groom.

February 1st.—Mr. GREENE in the chair, and sixty members present.

The subject of debate was "That the mode of manipulating political parties known as the *Caucus*, constitutes a serious danger to national freedom."

Miss Ellerman being unable to attend, Miss NADEN took her place and read the notes she had prepared. The Birmingham Caucus boasts that that its basis is popular, but this is true only so far as the election of the Ward Committees is concerned. The power of the people has to be filtered through the General Committee and the Executive Committee, into the hands of the Management Sub-Committee, consisting of eleven members, and is practically monopolized by the President and Secretary. The people are instructed how they must vote, and thus lose their liberty of choice. The Caucus is like Frankenstein's monster who tyrannised over his creator. It may be taken as an axiom that the existence of a large body of paid officials is fatal to the purity of political life. Another evil is that the Caucus controls the actions of members after election, thus rendering them mere puppets in the hands of the wire-pullers. Mr. Dixon, Mr. Muntz, and the Marquis of Hartington were instanced as victims of this tyranny. Moral independence is thus undermined, and good legislation not secured. —Miss DALE said that the National Liberal Federation, unlike the Conservative Union, is purely popular. Its Committee is a representative body, and its funds are subscribed by the members. It

exercises no compulsion. Lord Salisbury says the Conservative Caucus only elects, while the Liberal Caucus controls, its representatives. This is not true, though certainly Liberal members correspond with their constituents. Without organisation there could be no uniformity in political aims, and every one would pursue his own crotchets. The Caucus delivers us from self-elected wire-pullers. In small towns candidates are generally nominated by a country gentleman or two and a solicitor. In Birmingham, a meeting of the 800 (the members of which are chosen annually by the Ward Committees) is called, and any one can propose a candidate. As to the distribution of votes, of course there must be some plan. The Caucus is a channel by which the opinions of the people are made known, and it promotes Liberal principles in the government of the country.—Mr. JENKYN BROWN desired that the question should be treated without regard to party politics. All Caucuses, Liberal or Conservative, Protestant or Catholic, are bad. The National Liberal Federation is even worse than the Birmingham Liberal Association, because it affects the whole nation. You choose the best man, and praise him up at town's meetings, and then, if he does what he thinks right in Parliament, you pass a vote of censure. As to uniformity of aim, was there none before the Caucus? none in the days of Catholic Emancipation, Negro Emancipation, the Repeal of the Corn Laws, the Reform Bill? The Caucus is bad because the proletariat do not come to the meetings at which Ward Committees are elected; because representatives are converted into automata; because the best men thus become indifferent to political life; and because too great power is placed in the hands of individuals.—Mr. JORDAN thought the word Caucus is a misnomer. When the Reform Bill had been passed the question arose how the will of the people was to be expressed, and associations were formed in nearly every large town. They have fulfilled their object, and broken the back of the Conservative party. The Conservative Caucus is a mere clique, its members being chiefly chosen by favour of the clubs. When a representative votes wrongly it is right that he should be stopped. The Caucus tries to give to every man his political rights. Before it existed the Birmingham Town Council was nerveless. It is great and powerful because free.—Miss BRIERLEY said the Conservative Caucus may be bad, but two blacks do not make a white. We must act for ourselves, and not be dumb, driven cattle.—Mr. EHRHARDT considered that the corruption of political life in America

is due, not to Caucuses, but to the Civil Service system. What is a "large body of highly paid officials?" The *Gazette* applied the epithet "large" to a meeting held in a public-house and attended by twenty people, including the landlord, the potboy, and two customers, so perhaps there are twenty officials. The Caucus spends only £1000 a year, so these twenty cannot be highly paid.—Mr. BARRATT thought the principle of the Caucus right. There must be organisation, based on self-interest.—Miss EDWARDS said that there have been Caucuses always and everywhere. A cricket club is ruled by a Caucus, and so is our Union.—Another speaker said that the opposition to the Caucus sprang from timidity. But we owe to the Caucus our public buildings, our baths, our parks our libraries, and our collection of pictures.—Miss NADEN, in replying, said that the objection is not to the Liberal Caucus only, but to every Caucus. The speakers on one side have said that the Caucus is necessary; on the other hand, that it is an evil, Put the two together, and you have a necessary evil. If the people are to be perfectly represented, their representatives must be mere delegates, and must be tyrannised over. The system of representative government is like a medlar, rotten before it is ripe. As it approaches perfection it approaches corruption.—The Chairman now put the motion, and it was negatived by a majority of 10, 14 voting for and 24 against.

February 9th.—Mr. GREENE in the chair. About one hundred and twenty present, including visitors.

At this meeting, held in the Chemistry Theatre, Miss ALBRIGHT read a very interesting paper based on her travels in India, and her descriptions were illustrated by appropriate lime-light views, kindly lent and exhibited by Dr. Tilden. The lecture-table presented an unusually attractive appearance, being adorned with Indian stuffs, and with a collection of curiosities, among which were small figures of natives of different castes, embroidered caps, vases, nose-rings, leaden anklets, &c. We defer till a future issue our account of Miss Albright's paper, as we hope to be allowed to give more copious extracts than could be inserted in the short space usually devoted to Union Meetings.

QUEEN'S COLLEGE MEDICAL SOCIETY.

December 12th, 1883.—The President (Mr. Hugh Thomas) in the chair. Messrs. A. F. Hawkins, H. E. Blackwood, W. Rennie, and A. W. Thompson were elected members.—Mr. A. F. Clay exhibited a tibia fractured by a railway truck. Amputation above the knee had been necessary.—Mr. E. F. Eliot exhibited a kidney with a calculus in the pelvis, and Mr. J. Hall-Edwards a fœtus with the placenta attached to the head.—Mr. Hugh Thomas read a very interesting paper "On Uterine Displacements and their Treatment," which was discussed by Dr. C. J. Lewis, Messrs. W. P. Whitcombe, A. F. Clay, and S. Barwise.

January 16th, 1884.—The President in the chair. Messrs. Fellows, J. Boden, and A. A. Adie, were elected members. Notice of the first Scientific Conversazione in connection with the society, on February the 7th, was given.—Mr. C. E. Purslow exhibited numerous and interesting osseous specimens, in connection with which Dr. Windle's absence was much regretted.—Mr. A. F. Clay exhibited a large fatty tumour removed from an unusual situation, viz., the palm of the hand.—Mr. E. F. Eliot exhibited a fœtal heart with calcareous degeneration of the valves; also an aneurism of the arch of the aorta.—Mr. J. Hall-Edwards exhibited a liver with extensive rupture of the right lobe occurring in a boy who was caught by a grindstone; he also sustained compound fractures of each forearm and of the left leg, simple fractures of right humerus and both thighs, also a dislocation of the right elbow. The skull was not fractured, but the soft parts about the head were very much bruised. He was perfectly conscious when brought to the hospital, did not complain of pain, and lived about four hours.—Mr. S. Barwise read an instructive paper "On Ferments." In the discussion which followed Dr. L. Phillips and Mr. H. Thomas took part, and Mr. Barwise was warmly complimented.

January 30th.—The President in the chair. Mr. R. A. Fitch exhibited two fibroid tumours of the uterus removed with the ecraseur from a patient thirty-two years of age.—Dr. F. Leslie Phillips read a most instructive paper, illustrated with diagrams, on "The value of Effusion into the Pleura as a sign of Mediastinal Growths." In the highly interesting discussion thereon, the President, Messrs. Jordan Lloyd, S. Barwise, and Purslow, took part.

PRIZE COMPETITION.

The Editors are pleased to announce that, owing to the kindness of members of the teaching staff, a prize of one guinea is offered to the most successful translator of the following passage of German prose. The competition will be open to past and present students of the Mason and Queen's Colleges (in day or evening classes) of not more than four years standing.

"Aber wenn auch die Kraftvorräthe unseres Planetensystems so ungeheuer gross sind, dass sie durch die fortdauernden Ausgaben innerhalb der Dauer unserer Menschengeschichte nicht merklich verringert werden konnten, wenn sich auch die Länge der Zeiträume noch gar nicht ermessen lässt, welche vorbeigehen müssen, ehe merkliche Veränderungen in dem Zustande des Planetensystems eintreten können, so weisen doch unerbittliche mechanische Gesetze darauf hin, dass diese Kraftvorräthe, welche nur Verlust, keinen Gewinn erleiden können, endlich erschöpft werden müssen. Sollen wir darüber erschrecken? Die Menschen pflegen die Grösse und Weisheit des Weltalls danach abzumessen, wieviel Dauer und Vortheil es ihrem eigenen Geschlechte verspricht, aber schon die vergangene Geschichte des Erdballs zeigt, einen wie winzigen Augenblick in seiner Dauer die Existenz des Menschengeschlechtes ausgemacht hat. * * * * Wir schätzen die Menschengeschichte auf 6,000 Jahre, aber so unermesslich uns dieser Zeitraum auch erscheinen mag, wo bleibt sie gegen die Zeiträume während welcher die Erde schon eine lange Reihenfolge jetzt ausgestorbener, einst uppiger und reicher Thier- und Pflanzen-geschlechter, aber keine Menschen trug, während welcher in unserer Gegend der Bernsteinbaum grünte und sein kostbares Harz in die Erde und das Meer träufelt, wo in Sibirien, Europa und dem Norden Amerikas tropische Palmenhaine wuchsen, Rieseneidechsen und später Elephanten hausten, deren mächtige Reste wir noch im Erdboden begraben finden?"

H. HELMHOLTZ.

1. Translations must be sent in by March 10th, and the result will, if possible, be announced in the next number. The successful translation will be printed.

2. Translations must be signed by a motto, or by a *nom de guerre*, and must be accompanied by an envelope bearing the assumed name or motto, and containing the actual name.

3. The judges on this occasion will be Professor Sonnenschein, Dr. Dammann, and Miss Naden.

4. The names of unsuccessful competitors will not be published.

COLLEGE INTELLIGENCE.

Our readers will be pleased to learn that Professor Hill was not long ago elected to a Fellowship at Peterhouse, Cambridge, and that more recently P. Groom has obtained a £50 Exhibition at Trinity College, Cambridge.

The following is a list of the successful candidates at the recent London Matriculation: J. Barclay, A. J. Cooper, W. A. Evans, H. T. S. Forbes, M. E. K. Staley, and A. Wilson.

We notice that the Council at Queen's College has acceded to the students' suggestion of a gymnasium. The conditions, however, seem to make the grant not very valuable, for a spell at the parallel bars, or a journey on the "ladder of life," is not to be indulged in amid lectures or dissection. But it is just at mid-day that the back can be most usefully unbent, the brain most properly relieved. Our friends at Queen's will no doubt take their inch and calculate how many such units are needed to make an ell.

Mr. L. A. Baine, who will be pleasantly remembered by 1882 students, has won at the Newcastle College of Science the entrance Medical Scholarship of £100 and the "Hall" Scholarship of £60.

On the Founder's birthday the students' new Common Room will be formally opened at eleven o'clock by Dr. Heslop, the Bailiff, and the Professors and Students will perhaps join in expressing their approval and appreciation of this addition to the conveniences of the college. The claims of the *Magazine* staff to a table, some shelves, and a cupboard, are here humbly put forward.

The following are the staff in question: Editor, Miss Naden; Sub-editor, A. J. Cooper, *vice* W. Greatheed, resigned; Treasurer, F. J. Cullis; Secretary, Miss Charles. Mr. J. Hall-Edwards has also kindly promised to send in the Queen's College Gossip, and Miss J. Moore to take charge of and lend out to applicants the magazines of rival and friendly establishments.

The next issue of the *Magazine* takes place on Thursday, 20th March. All contributions must reach us by 10th at latest. The Subscription for the present year is 3s., or 3s. 3d. post-free, and the Editors are reckoning on the kindness of all their subscribers in continuing to support the *Magazine* unless they give notice to the contrary.

THE MASON COLLEGE CHEMICAL SOCIETY.

The first meeting of this society was held on Wednesday, the 13th inst. Its origin is due to Dr. Tilden, who issued a circular inviting all past and present students in the Chemical Department, if willing to aid in the formation of such a society, to send in their names. In answer to this circular over sixty names were received. After a pleasant chat over tea and coffee kindly provided in Dr. Tilden's private room, the meeting adjourned to the Chemistry Theatre, where the Professor opened the proceedings with a statement of the advantages of intercourse and investigation which might be expected to accrue to the students from such association. He proposed that its constitution should be as follows: The Professor of Chemistry for the time being to be President, the Lecturer and Demonstrator to be Vice-Presidents, and eight students, elected annually, to form the Governing Committee. The Professor hopefully looked forward to the time when the work of the society would be carried on by the students themselves and permit the President and Vice-Presidents to retire into purely ornamental positions.

The following members were then elected as the Committee for the Session:

	Proposed by	*Seconded by*
Mr. Adams, Mr. Lloyd,	The President,	Mr. Collins.
Mr. Ogle,	Mr. Lloyd,	Mr. Silvester.
Mr. H. Price,	Mr. Harrison,	Mr. Smithson.
Mr. A. J. Cooper,	Miss Naden,	Mr. Ledsam.
Mr. Hough,	Mr. Adams,	Mr. Harrison.
Mr. Dewes,	Mr. Cullis,	Mr. Gardner.
Miss Charles,	Mr. Ehrhardt,	Mr. Adams.

A very interesting presidential address upon "The Progress of Scientific Chemistry" was then delivered, which we hope to be able to print in a future number of the *Magazine.*

Experiments were afterwards performed by Mr. Nicol, Mr. Turner, and Mr. Lloyd, which were not the less interesting for foreshadowing the probable ultimate absorption of Chemistry into Physics.—The President explained that the selection of the experiments had been determined by consideration for the visitors who had honoured the meeting by their presence. On the next occasion the members would settle down to their more purely

chemical work.—Mr. Lloyd showed that when a drop of water was placed on a hot platinum plate, the water assumed the spheroidal state, and did not actually touch the plate; this he proved by connecting the platinum plate with one pole of the battery, and the drop of water with the other pole, an electric bell being in circuit. When the drop was in the spheroidal state, there was no contact and the bell accordingly did not ring, but when the plate was allowed to cool, and the drop of water consequently touched the plate, contact was perfect and the bell rang. Mr. Lloyd, by by means of the lime light lantern and a screen, then showed that there was actually a space between the plate and the drop.—Mr. Nicol then explained, and also by means of the lime light, illustrated the brown fluorescence of iodine vapour.

Other exhibitions were the curious experiment of blowing through a brick, Carnelly's experiment with mercuric chloride, and dipping the unprotected hand into molten lead. The latter specially afforded a good deal of amusement.

We were pleased to notice among Dr. Tilden's guests Mr. George Dixon and most of the Professors.

The meeting broke up with a feeling of hopefulness with regard to the prospects and usefulness of the infant Society, and of its indebtedness to the energy and kindness of its President.

Students desirous to join will be good enough to communicate with the Secretary *pro. tem.*, Mr. George Lloyd, Mason College.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: names will not necessarily be published, but are required as a guarantee of good faith on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Madam,—Perhaps some of your readers can give some reason why the lady students should always wear their hats while at College.

The only explanation I have heard is that by so doing they keep up their dignity. Is that dignity so very unstable that it must needs be fastened to its owner by pins and elastic?

I am, yours truly,

J. I. M.

To the Editor of the *Mason College Magazine.*

Madam,—As I understand that one of the functions of this Magazine is the ventilation of grievances, I wish to complain of the torture inflicted on sensitive ears by certain forms of speech and pronunciation common in this College. We pride ourselves on belonging to a *Science* College, but this is surely no warrant for neglecting such an elementary *Art* as that of speaking with some degree of correctness. A few examples (all of which I have heard frequently) may show my meaning more clearly.

"Hadn't we used to do this or that?" would scarcely be considered parsible by any grammarian from Murray to Morris. "Didn't we used?" is not much better; perhaps the auxiliary verb "to be" would less objectionably assist those who wish to refer to past customs than either of

the former. The phrase, "Moreover than that," is redundant, a state of things to be deplored in a utilitarian age, when all scientific researches are directed to the prevention of waste.

"This is different to that" is so common even among those who would never dream of saying "This differs to that," that I despair of eradicating it, and after all it is preferable to "different than," which is not an unheard-of expression on the lips of incipient graduates and embryo professors.

We turn now to pronunciation. How is it that the first two cardinal numbers are so grievously maltreated? Several members of the M. C. U. appear to think that the letters o n e, should be pronounced to rhyme with "Swan," while investigation has proved that "tew" is the equivalent for two.

Why ears polite should be offended by being addressed as "years," it is difficult to understand, and I cannot persuade myself that "Plahnt" is the right way to speak of a growing vegetable organism. The diphthong "ou" (out) is not particularly melodious taken upon its own merits, but it is musical compared with the same letters with an "e" prefixed. Fancy Tennyson's *Brook* singing:

"I wind about, and in and eout."

There is a juvenile pastime which some of us would doubtless render "Heow, Wen, and Ware?"

Examples might be multiplied, but remembering that "*Verbum sap.*,"

I am, yours, &c.,

QUEEN'S ENGLISH.

[We hope that members of the M. C. U. will take this pathetic complaint to heart, but with all deference to "Queen's English" we venture to suggest that the figurative use of the verb "to ventilate" may more aptly be described as "President's American."—ED.]

OUR CONTEMPORARIES.

The criticism which had been prepared is unfortunately crowded out, and we can give little more than a bare list. *The Haileyburian* chronicles the departure of the headmaster, to whom Haileybury chiefly owes its fame. *The Reptonian* still grumbles at neglect by critics, and contains a capital article on editing school magazines. *The Central Literary Magazine* contains a charming presidential address by Mr. George Zair. *The Institute Magazine* (2) informs us that the new Metallurgical Laboratory is to be the best in England. *Laurel Leaves* says all that can be said on Napoleon, for or against. *The Marlburian* is chiefly devoted to football; and the *Girton Review* is largely given up to discussing the Greek play recently acted in costume, after preparations of nearly a year. In what may not our Shakespeare acting eventually culminate?

ERRATA.

Index, under Correspondence, 20th line, for "J. C. Evans," read "I. C. Evans." Page 213, 12th line from bottom, for "1880" read "1883." Page 220, 6th line from bottom, for "irrevelant" read "irrelevant."

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MARCH, 1884.

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No. 2, Vol. II. **MARCH, 1884.** Price 6d.

CALENDAR.

March 25th.—Tuesday—Microscopical Society—Geological Section.

,, 28th.—Friday—Union Meeting. Address by Prof. Bodington, "Oxford Life in the Eighteenth Century."

April 1st.—Tuesday—Microscopical Society—Ethics of Sociology—Mr. W. H. France.

,, 3rd.—Thursday—Spring Term ends.

*THE PROGRESS OF CHEMISTRY.**

In looking back and attempting a review of what has come down to us from the men of old time, if we are ever tempted to think meanly of the legacy which any one of them has bequeathed to us, let us do our best to realise the difficulty of working under the adverse conditions of their time without any of the common apparatus and appliances with which we all are now familiar. . . . . That these old chemists were, many of them, not only capable observers, but humble-minded and serious enquirers, no one can doubt after the perusal of some of their writings. I would in this connection commend to your notice such a writer as Basil Valentine, whose exhortations to the unsuccessful chemist to turn again and learn his theory more perfectly, have something quite touching in the midst of all their quaintness.

In our retrospect we shall be obliged for want of time to omit mention of the lives and labours of the chemists who preceded or were contemporary with Boyle. For five hundred years or more the attention of chemists had been absorbed in the endeavour to apply their art to the making of gold. Later the notion arose of producing a universal medicine capable of curing all diseases and restoring old

* The above is the substance of the address delivered by the President of the Mason College Chemical Society (Professor Tilden), at the Inaugural Meeting, on the 13th February. A short report of the proceedings on this occasion appeared in our last number.

age to youth. The art of chemistry certainly arose in the laboratory of the alchemist, but there no science ever dwelt, nor could ever dwell, amid the jugglery of transmutation. Hence chemistry has been not inaptly described as the wise daughter of a foolish mother. Scientific chemistry began, and with it a stream of improvements in the art and its applications, when enquiry into natural phenomena began to be pursued with a single eye to their explanation and without regard to the immediate production of wealth—a lesson which the world of this nineteenth century would do well to lay to heart.

Not unnaturally the nature of fire and the state of burning bodies was a subject which early attracted the attention of those chemists who succeeded in shaking off the trammels of alchemistical tradition. But how difficult was the enquiry it is now only possible to conjecture from the fact that for a century or more a theory of combustion was universally accepted, which, if a quantitative test had been applied to it, would at once have been shown to be fallacious. This was the celebrated theory of "*phlogiston*," originated by Beccher and developed and promulgated by his disciple George Ernest Stahl. According to this theory all combustible substances consist of a calx or ash united with a peculiar principle called phlogiston, which in the act of escaping in a state of great agitation, gives all the appearances of fire. A child might be satisfied with such an explanation as this, but a few simple experiments would soon show him that it could not be true. Nevertheless the theory of phlogiston deserves to be looked back upon with no disrespect. It represents one of the earliest attempts to construct a theory in chemistry, and it served to explain the fact that a combustible body by contact with an incombustible body is capable of transferring to the latter its property of combustibility. Further, the phlogistic theory is applicable to the explanation of the apparently different phenomena of combustion, rusting, and calcination of metals, decay of vegetable and animal matter, by which a combustible is converted into an incombustible substance. The history of the theory of phlogiston illustrates in a remarkable manner the influence of prejudice on the human mind. In the days of Beccher and Stahl nearly all the facts necessary to explain the phenomena of combustion were known. The principle that the mass or quantity of matter in a body is proportional to its weight had been already taught by Newton. That there are different kinds of air or "gas," as they had been called by Van

Helmont—sulphurous, inflammable, mephitic, and so on—and that these varieties of air were produced by burning different combustibles was already recognised by all experimental chemists. The barometer, the invention of Torricelli, and the air-pump introduced by Von Guericke were already known to philosophers, and Robert Boyle's investigations concerning the "spring of the air" were published at this time. Further, it had been demonstrated by Rey, a French physician, in 1680, that metals when calcined increase in weight, owing, as he maintained, to absorption of air. Boyle had found that a candle, charcoal, sulphur, would not burn, neither could gunpowder be fired by flint and steel in the exhausted receiver of his air-pump; and Hooke in 1665 had pointed out that air is necessary to combustion, and that it acts in virtue of an ingredient "like unto or the very same as that which is fixed in saltpetre." But even more remarkable are the experiments of Mayow, published in 1675. Mayow burned a candle under a bell glass and found the air so changed as to be unfit for the continuance of combustion. He then confined a mouse in a similar portion of air and found that it could not live. Then putting a mouse and a candle together under the same bell glass he found the animal live only half the time it had survived when alone. He then reversed the experiment and endeavoured, of course unsuccessfully, to light a candle in air that had been spoiled by breathing. Facts of this kind were notorious. Nevertheless the doctrine of phlogiston held sway undisputed for three quarters of a century.

The antiphlogistic theory of combustion, which in 1790 finally supplanted the Stahlian doctrine, was the immortal discovery of the great Lavoisier. But the invention and establishment of this theory became possible only as a consequence of the discovery of oxygen by Priestley in 1774, and of the compound nature of water by Cavendish in 1785.

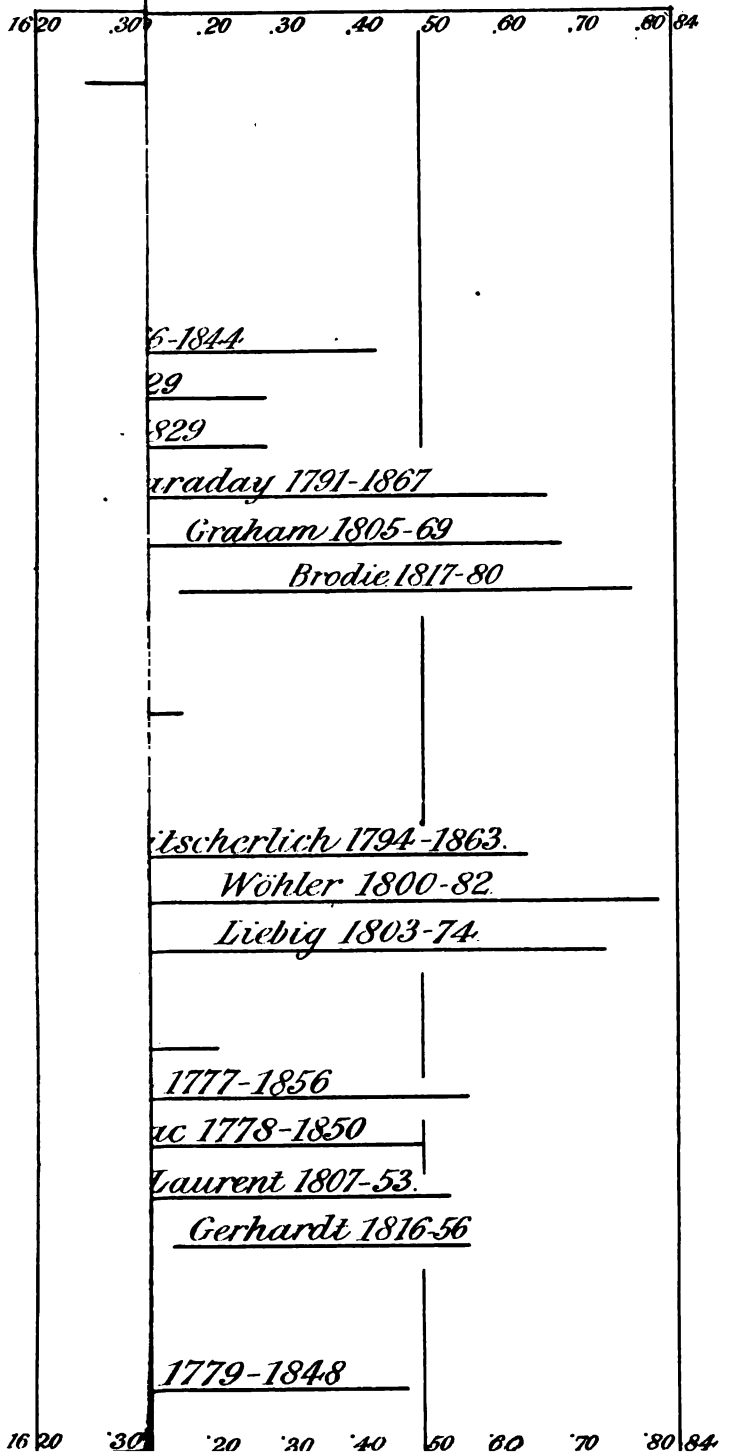
From this period may be dated the origin of modern scientific chemistry. By his theory Lavoisier explained not only the ordinary process of burning and the calcination of metals which was known to be attended by increase of weight, he showed that when charcoal is heated with metallic calces, and the metal is reduced, large quantities of carbonic acid gas are given off, which he explains is composed of the charcoal united to the elastic fluid contained in the calx. Lavoisier also proved that the eminently respirable air, to which he afterwards gave the name oxygen, is contained in phosphoric, sulphuric, and other acids, and that sulphurous acid, for

example, differs from sulphuric acid by the quantity of oxygen it contains. These fundamental facts once established, the colleagues and contemporaries of Lavoisier were enabled to assist in applying these views to the explanation of the constitution of salts, and—with a few modifications afterwards rendered necessary in consequence of the new facts which became known concerning the nature of chlorine, and the subsequent discovery of bromine, iodine, and cyanogen—these views formed the basis of the binary theory of salts which has been everywhere in constant use almost to the present day, and is not even yet discarded among certain French chemists.

With the view of showing the progress of chemistry in the four chief countries of Europe—England, France, Sweden, and Germany—in which the science has been cultivated, I have constructed the following chronological table. This table includes only the names of those chemists who have advanced the theory of chemistry by their discoveries or by their writings. I have purposely omitted a crowd of names, such as those of Lemery, Macquer, De Morveau, Fourcroy, Vauquelin, Stromeyer, Gahn, Rose, Henry, T. Thomson, Turner, Deville, and others, who although distinguished by their discoveries and by their knowledge of the art or the science of chemistry have rather added to the detail of the superstructure than to the foundations of the science. I have also omitted living chemists. Hence the honoured names of Andrews and Frankland, Dumas, Berthelot and Marignac, Bunsen and Hofmann, and those of many their younger contemporaries do not appear in the account. The lines under the names in the table are proportional to the length of each life, and thus it is easy to see at a glance who were contemporaries at any given period.

Let us first come to an understanding as to what we may fairly regard as the most important fundamental principles of the science of chemistry so far as they have been recognised up to the present day. We shall then be in a better position to discuss the title of some of these names to the places they respectively occupy in the table.

Chemistry teaches us that all those substances which present definite and constant physical characters, and which are not evidently mixtures of several components, may be placed in two divisions. Taking, for example, iron and iron rust, we know that whilst we can by suitable means withdraw from the rust both iron and oxygen, we cannot by any process at present known take away


16 20 .30 .20 .30 .40 50 .60 .70 .80 84
6-1844
29
829
raday 1791-1867
Graham 1805-69
Brodie 1817-80
itscherlich 1794-1863.
Wöhler 1800-82
Liebig 1803-74
1777-1856
ac 1778-1850
Laurent 1807-53.
Gerhardt 1816-56
1779-1848
16 20 .30 .20 .30 .40 50 .60 .70 .80 84

from iron anything that is not iron. The rust is composed of two kinds of matter which, when in chemical combination, show none of their own properties but give rise to a compound possessing altogether new properties. Iron, on the other hand, is, so far as we know at present, composed of only one kind of matter—in other words, it is an "element." The recognition of this classification of substances is due to Boyle. In Boyle's time ideas of chemical composition and constitution were made up of a strange mixture of fact and fancy. The ultimate component parts of matter were represented as salt, sulphur, and mercury, the mystical representatives of the body, the spirit, and the soul of man, or the essences of solidity, inflammability, or decomposibility, and of volatility. Time would not permit us to examine these doctrines now. In his *Sceptical Chemist*, Boyle points out that the common doctrine took for granted the very things which had to be proved, and was moreover often entirely inconsistent with fact. Had it not been for the intervention about this time of the false doctrine of phlogiston, which deferred the birth of chemistry yet another century, there can be little doubt that Boyle's views would have prevailed.

But one of the most striking facts of chemistry is surely the constancy of composition which we now fully recognise, and attribute, in accordance with the ideas of Dalton, to the existence of *atoms* of determinate mass. The earliest experimental proofs upon which this belief is founded are to be found in the essay of Wenzel in 1777, and more particularly in the work of Richter, a chemist living at Berlin in the latter end of the last century. So far as one may judge from their writings neither of these chemists recognised the vast importance of the facts which they succeeded in discovering, and Richter especially came very near destroying for ever the value of his work by inventing and obstinately retaining a certain peculiar and wholly groundless mathematical theory of combination and then trying to fit the facts to his theory. But the discovery of the equivalency of acids and bases in the formation of neutral salts is due to Richter, and was unquestionably the starting point for the long series of more exact determinations of combining proportions to which Berzelius devoted his life. The laws of multiple and reciprocal ratios being once recognised by Dalton, and the discoveries of Gay Lussac as to the volumes of combining gases having supplied an extension of these laws, all the rest up to quite recent times has been mere refinement and improve-

ment in respect to the accuracy of the experimental determinations. Most of the remaining names on our list, though they each one remind us of advances, must be dismissed without further commentary. Justice could not be done to the least memorable among them without a longer history than we have now space for.

We are, however, arrested by two names which must ever remain closely united and memorable in the history of the science. I mean Liebig and Wöhler. These two chemists opened up a new world of discovery which has proved equally fertile, alike in theory and in practical usefulness with the whole of mineral chemistry. Organic chemistry, as it has long been called, is the chemistry of carbon compounds. Liebig and Wöhler not only entered upon investigation in this field of work, but they invented the methods of investigation which up to their time had not existed. It is true that alcohol, ether, sugar, the acids of vinegar, of ants, of benzoin, and many other substances, had long before been prepared, and some of their properties were known, but their composition had never been determined. The processes of fermentation and decay had also attracted attention but nothing was known of their true nature. And, further, the so-called organic substances known to chemists of that time were all obtained from animal or vegetable substances, and were supposed to owe their formation to the operation of some mysterious *vital* principle. In 1828 Wöhler discovered the process for making urea *artificially* by the action of heat on ammonium cyanate. Nevertheless, it was not until many years after that chemists generally perceived the full import and significance of that notable discovery. During the half century that has elapsed organic chemistry has assumed a new aspect and a new name. There are comparatively few carbon compounds which are now prepared from their organic sources, sugar and some of the alkaloids are the most important, but, owing to the active researches of an army of workers, methods have been discovered by which not only a great number of *organic* substances can be prepared, but a host of others, numbering many thousands, which are of purely artificial origin.

As for Liebig, to supply merely a list of his researches would take up too much time. In chemistry he may be said to have done for us two great things. He showed how carbon compounds of all kinds can be simply, easily, and accurately analysed. We owe to him the now familiar process of combustion. But the greatest service Liebig rendered to the world was the establishment of the

laboratory in the University of Giessen, where for the first time students of all nations could go to receive instruction in practical experimental chemistry, as now understood, and were guided and encouraged in the pursuit of investigation. Of the importance and wide-ranging influence of the school thus happily founded it is possible to form an estimate when we consider that nearly all the famous chemists of the now passing generation received their training in Liebig's laboratory, and went forth to carry into other cities and to other lands the principles with which they had there been imbued.

Let us once more refer to our chronological table, because I now want to draw from it one lesson of a somewhat different character. We see here among the representatives of England a brilliant series of names in unbroken succession from Black, Cavendish, and Priestley, down to the days of Brodie, and his contemporaries Andrews and Williamson and Frankland, whose names do not appear. In France the science taught by Lavoisier was extended and adorned by such men as Berthollet, Gay Lussac, Laurent, and Gerhardt. In Sweden there have been Bergmann, Scheele, and Berzelius, and their living successors, of whom Julius Thomsen is the most distinguished. When we come to Germany we find that from the days of Beccher and Stahl, whose services you will now be able more readily to appreciate at their true value, down to the time of Liebig and Wöhler, not a single name occurs of equal rank with Lavoisier or Davy to fill the long interval. Klaproth, whose name appears on our table, was a man of great talent and industry, but his discoveries, numerous as they were, related almost entirely to the details of mineral analysis, and he receives a place amongst the immortals only on the ground that his methods marked a great advance in the art, and indirectly had an influence upon the science of chemistry by the introduction of greater accuracy into analysis.

Before the establishment of Liebig's laboratory at Giessen it had not been the custom in any of the numerous universities of Europe to teach chemistry except by lecture, and there were few laboratories into which more than one or two privileged students were admitted. Liebig himself had to seek in Paris the instruction which he could not obtain in his own country, and even there he was indebted to the good offices of his great compatriot Alexander von Humboldt for the friendly reception he met with.

At this time there existed in London an institution which,

though it was not in any sense a school or place of instruction, was yet the acknowledged home of scientific research. The walls of the Royal Institution, to which of course I refer, have witnessed a long succession of discoveries in chemistry and physics, the like of which cannot be produced by any university in the world. The work of Rumford and of Davy in thermodynamics, the decomposition of the alkalies and earths, the discovery of the true nature of chlorine and final dispersal of phlogistic fancies, the invention of the safety lamp, the first liquefaction of gases, the discovery of benzol, the establishment of the laws of electrolysis by Faraday, not to mention the later work by Faraday's successors—these were some of the things done in the Royal Institution in Albemarle Street, London.

The theories of chemistry have been largely indebted for collateral support and confirmation to discoveries in physics. Avogadro and Ampère, Dulong and Petit, Faraday and Regnault,—these are the names with which every student is familiar. Reviewing all these circumstances it not unnaturally occurs to one to enquire how it is that we so commonly hear statements intended to disparage English chemistry and English chemists, and to exalt the chemistry of the German schools, when history tells us that the entire foundations of chemistry have been laid and a large part of the philosophic superstructure raised by the conjoint labours of English and French chemists with scarcely any assistance from Germany. It is said sometimes, though I believe the assertion is made now less confidently than a few years ago, that chemistry could not be learnt in England—that you must go to Germany. Now, in considering such a statement, one is led to ask, first, Is it true? and, secondly, If true, what can be the reason of such a state of things?

In the first place, then, I venture to assert boldly that it is not wholly true now, and whatever might be said twenty or even ten years ago it certainly is becoming less true every year.

The reputation which Germany has acquired is due in the first instance and chiefly, as I have already said, to the influence of Liebig, and I have little doubt that the great schools of physiological research now flourishing in Germany owe their existence, in part at least, to his work in physiology. Liebig discovered, so to speak, organic chemistry. Now it is one of the marvellous characteristics of the element carbon that it lends itself to the production of so large a number of stable combinations. Consequently

the chemistry of carbon compounds becomes, even in the most inexperienced hands, astonishingly productive of new substances. And this, I believe, is part of the secret which drew away so large a number of workers into this field of research. Every man who entered it thirty years ago was bound to become a discoverer, and reputations were easily manufactured by many who would have been helpless in the face of the problems which the older chemists set themselves to attack. Things are now rapidly changing in this respect, and I would not for one moment lead you to suppose that I wish in the slightest degree to disparage the work of such a man as Professor Baeyer, whose synthesis of indigo is one of the most remarkable achievements of our generation. Neither do I desire to make you forget that Germany is justly proud of Bunsen, whose researches, all of the highest order, have ranged over every department of chemistry. But I do desire to let you know that though the chemical schools of Germany are justly celebrated we have no reason to be dissatisfied with the rate of progress we are now making to recover the ground we had lost.

But how is it that in Germany there are so many schools of chemistry whilst in England there have been hitherto so few? The answer is not far to seek. Germany is composed of a great number of small kingdoms and grand-duchies which were united under the imperial government in 1871. Each of these principalities had its own university, and when the school at Giessen sprang suddenly into fame, every one of the other German universities set to work to emulate Giessen. The result has been that Giessen is now one of the least important of the chemical schools, whilst at Berlin, at Bonn, at Munich, at Strasbourg, at Heidelberg, and several other places are to be found palatial laboratories provided with every necessary, beside handsome residences for the professors, who in every one of the places named are men of world-wide reputation.

Here in England we have several universities of ancient foundation and noble traditions. But in these older universities prejudice has been too strong for the successful establishment of chemical teaching until quite recently. The sort of feeling that prevailed thirty years ago, and which I fear is hardly extinct even now, is well illustrated by the story (which I have reason to believe is true) of a Cambridge man congratulating his Oxford friend upon having at Oxford a baronet for professor of chemistry, because it made the subject respectable. The consequence of all this was

that in England forty years ago there was no home for chemistry. And so Englishmen, like the rest of the world, flocked to Giessen.

England is now in a fair way to retrieve her fallen fortunes. Abundance of good work is being done. Our German friends and their supporters are apt to arrogate to themselves rather a larger share of modern discovery than is their due. It is therefore not superfluous to remind them that the discoverer of the artificial colours, called mauve and magenta, and of artificial alizarine, is an Englishman, now President of the Chemical Society, and that the whole of the coal-tar industry, like that of coal-gas, originated in England. What more important discovery has the world ever seen than the production of Bessemer steel, and the more recent basic modification of that process? The discoverers in each case were Englishmen,* and the process was worked out in England. If we turn to pure chemistry we find that the discovery of the whole of the organo-metallic compounds was the work of one Englishman, now Professor in the Royal School of Mines, and we owe to Crookes, also an Englishman, one of the earliest and most remarkable discoveries made by the help of the spectroscope—I mean the metal thallium.

And in the matter of instruction too we are very little behind the Germans, and we are rapidly gaining upon them. I visited last summer the magnificent new laboratories built for the University of Strasbourg by the German government, and I declare to you that although they surpass the Mason College in the convenience of being upon the ground floor, and in the provision made for the accommodation of the professor, I saw no appliance there which I was particularly desirous of importing into my laboratory. A few days afterwards, at the little old town of Delft in Holland, I saw at the Polytechnic School a laboratory which I thought superior, in point of convenience, to the palace of Professor Fittig.

Let us make a rough estimate of the Chemical Schools in England. There are in London at this moment at least three large modern chemical laboratories with distinguished professors, and there will shortly be another at the Central Technical Schools at South Kensington, which will probably be one of the largest in the world. I say nothing of the numerous laboratories at the hospitals and smaller colleges. In the country we have well-equipped chemical establishments at Bristol, Birmingham, Dundee, Leeds, Liverpool, Manchester, and Nottingham. At Newcastle-on-Tyne, at Sheffield,

* Sir Henry Bessemer was born of French parents, but has lived in this country all his life.

and at several other places, colleges also exist under competent professors, though at present imperfectly equipped. At Oxford there is a good laboratory, and at Cambridge there will shortly be another. As to the ancient universities of Scotland, I regret to have to say that they are so given over to medicine or theology that they seem to have forgotten the traditions of Cullen and Black when Glasgow and Edinburgh were active centres of chemical teaching and research.

We have all these opportunities of teaching and learning chemistry, and yet we are not satisfied. What more do we want?

Among other things we want more money for material and appliances, more students, more leisure for the professors, more sympathy from the governing bodies and from the public, in our work alike of teaching and research, more intelligent recognition of the usefulness of chemical knowledge by chemical manufacturers. I feel tempted to dilate upon this last point. Young men will proceed to learn chemistry, and learn it thoroughly, when they find that a mere elementary and superficial knowledge is not sufficient to get them employment. It is therefore of little avail to complain to the English student of want of thoroughness in his work unless we can show him that it will pay him to learn more. But the evidence on this head is already strong enough.

Chemical manufacturers may be divided into three classes according to the view they take of this matter. There are some who say that chemical knowledge is of no use to them, and they decline to employ chemists. This class will, I believe, disappear, and that very soon. There is a second class, a very small one at present, who recognise fully the advantages of scientific knowledge and give their sons the best scientific education they can get, and this they have sought principally in Germany, the opportunities of instruction in England having been till lately quite inadequate. The third class of manufacturers to which I refer includes those men who know that they must have good chemists, and finding none, or very few among their young countrymen, they employ Germans. These gentlemen are generally well-trained and skilful chemists, who, at the end of their three or four years in the laboratory, have taken their degree, come over to England and accept situations at £50 to £100 a year. Do not suppose, however, that they remain in these positions very long.

If we go into the iron and steel works of South Wales and in the North of England, into the dye-houses and print works of

Yorkshire and Lancashire, into the alkali works of St. Helens and on the Tyne, we find the laboratories literally swarming with Germans, who are holding the situations which ought to be occupied by Englishmen. How long this state of things is to exist is a question which is entirely within the power of young English chemists to determine.

THE UNION.

February 15th.—Mr. GREENE in the chair. Sixty-four present, including visitors. Six new members elected. After the reading and passing of rules relating to the conduct of the Magazine, and of three bye-laws, the Chairman informed the meeting that Mr. Cooper had been elected Sub-Editor by the Committee, and that Mr. Ehrhardt had consented to take his place as Secretary. On the motion of Mr. Barwise, seconded by Mr. Jordan, the election of these two gentlemen was confirmed by the Union. Mr. Greene being compelled to leave early, he nominated Mr. Cooper as vice-chairman for the rest of the evening.

The debate on the proposition "That this house is of opinion that there should be one standard minimum exmination for the medical profession," was then opened by Miss SAXELBY, who pointed out the defects of the present system of medical education. The standard of the London University is too high, so that successful students are often injured for life by the mental strain; while the examination at the Apothecaries' Hall directs attention to names rather than things, and overlooks the later developments of medicine. The jealousies between the various bodies (caused by the unequal value of their diplomas) also show the need of reformation. There are no less than nineteen different corporations, granting diplomas of nineteen different degrees; and if a student is plucked at one examination he resorts to some inferior corporation and creeps into the profession by a back way. Each of these bodies has some speciality, which it fosters at the expense of other subjects equally important, and which may be opposed to the natural bent of many of the students.

Miss STURGE failed to see why, because three or four of the examining bodies granted inferior degrees, the remaining bodies should be done away with, and quoted from an article by Professor Huxley to show that the standard at present required was quite sufficient to maintain the status of the profession. The

effect of a single standard examination would be to confine the work to one groove and consequently to narrow the scope of the professors. It would set up a system of cramming, and would lead to uniformity in the treatment of disease. The majority of the students would be satisfied with the one examination, and would not work for the higher degree. The State cannot prevent old women from giving cough mixtures and chemists from prescribing over the counter. Miss Sturge then quoted two clauses which Prof. Huxley proposed should be added to the Medical Act.

I. That no person shall be allowed to practise unless he has passed a recognised examination.

II. That no examination be accepted except such as is recognised and conducted by the Medical Council.

Mr. BARWISE confessed that Miss Saxelby had left nothing for him to say, but Miss Sturge had provided him with plenty of materials. The only uniformity among examining boards is the practice of extorting as much money as possible from the students. After passing the standard examination students would enter for the higher degrees, and only the inferior examining bodies would die out. Even at the present time those who took the London M.D. had frequently taken also an inferior degree, as in the case of three of the Physicians of Queen's Hospital, who held the diploma of the Apothecaries' Hall. The proposal deserves very earnest support, especially when the Universities and Hospitals are exerting themselves to elevate the profession.

Mr. BARRATT objected to Mr. Barwise's remarks as to examining boards screwing money out of the students, and thought that the proposed examination would prevent men who had received a poor education from entering the profession. Quacks and unqualified assistants often do the best work, and those men who succeed best are not those who hold the best degrees. This examination would stop competition, and competition is desirable.

Mr. LOVE rose to emphatically oppose the motion before the house. Many present would be astonished that he, a professor of experimental physics, should speak on such a subject, but he begged to state that he was a registered medical student. He was exceedingly averse to a radical change in the noblest of all the professions. Examinations are not tests of the capabilities of a man. Even Sir A. Cooper once opened an aneurism believing it to be an abscess, and Hutchinson was ploughed by the examiners for quoting a case with which they were unacquainted. The higher

degrees are only within the reach of those few who can devote more than four years to their studies. A great many men consider their L.S.A. every bit as good as their M.R.C.S. The only function of an examination had been described as that of charging a student like a battery, and enabling him to return with some loss what had been put in.

Mr. St. Johnston thought it was very hard that a man who had a speciality should obtain a diploma allowing him to practise in every branch of the profession.

Mr. Greatheed believed the subject to be well worth a different treatment. Who is going to be sacrificed, and who is going to be benefited? The injury would be to such bodies as the Apothecaries' Hall. The benefit would be to the lower classes, who are unable to choose their own medical men. Nevertheless such a standard examination might produce a similar sleepy condition to that existing in the legal profession, and thus increase the number of anti-vaccinators and homœopathists, etc. Much of the expense and nuisance of the present practice of law is due to the coupling of conveyancing with court practice, and, if these had been separate, there would have been better practitioners because there would have been better specialists.

Miss Saxelby could not agree with Miss Sturge in respect to medical men lapsing into uniformity, as it was impossible for men to be cast in the same mould. The men would develop their own peculiarities and specialities, although the training may have been the same.

Mr. Cooper then took the votes of the house—affirmative 20, negative 7.

February 22nd.—Mr. Greene in the chair. Seventy-seven present, including visitors. One new member elected. After the passing of a bye-law relating to the introduction of visitors at meetings of the Union, the Chairman announced that the new Common Room would be opened on the following day, and that Mr. Groom, as the representative of the students, would present the address to Dr. Heslop.

Mr. Evans then read a paper on "Feathers." After giving a general definition of the word he went on to describe a typical feather, which consists of a shaft and web composed of barbs which are furnished with barbules. Feathers in their origin resemble hairs; they spring from a follicle, at the base of which is a papilla. The web is produced separately, and then joined on to the shaft.

At first the feather is enveloped in a soft case, which afterwards falls off; this may be illustrated by putting the feather in plaster of Paris. Feathers keep up the temperature of the bird partly by their low conductivity, and partly because they enclose air, which is also a bad conductor of heat. They extend the surface of the bird's body so that flight becomes possible. The wing and tail feathers play the most important part in flight, as they are strong and compact. The wing feathers of the penguin strongly resemble scales, those of the apteryx and cassowary resemble hairs. In the case of the latter they grow double, that is two shafts spring from the same quill; in game birds there is an accessory plume. In other cases the feathers become bristles, as in the goatsuckers and barbets. All classes of feathers are liable to variations in different species of birds. Such are the crest of the pheasant, the heron, and the tern, the ruff of the American prairie-hen and of many humming-birds, the bunch of coarse hair on the breast of the wild turkey, the tail feathers of the argus pheasant, lyre bird, and marabout (a large stork resembling the Indian adjutant, living in the north of Africa). The tail of the peacock really consists of a few short stiff feathers, while what is generally called the tail is only an appendage. The beautiful feathers springing from the back of the bird of Paradise should also be mentioned. The tips of the feathers of the waxwing and cedar bird are curious, resembling sealing-wax. The moulting seasons of birds may be divided into four classes. Many birds which have only a single moult undergo a visible change of colour, which operation, due to losing certain portions of their feathers, is called border or point casting. The snow bunting forms a good illustration of this. Mr. Evans expressed his disapprobation of the way in which feathers are abused by ladies, to gratify whose whims thousands of innocent birds are slaughtered. The paper was well illustrated by a collection of specimens.

Miss I. C. Evans then gave an interesting paper on Tennyson's "Princess," illustrated by readings. After a few remarks from Mr. Love, the Chairman called upon Miss Huckvale to move and Mr. Badger to second a vote of thanks to Mr. and Miss Evans.

March 7th.—Mr. Greene in the chair. Ninety-four present, including visitors. After the election of two new members, Mr. Cooper opened the debate on the resolution "That the Nationalisation of Land would be beneficial to this country." All the necessaries of life come ultimately from land; but men will not improve

their land when they know the profit will go to some one else. Mr. Muntz at the present time has thirty-two farms vacant, because he demands a higher rental than the farmers will pay. Is the wealth of Lord Calthorpe due to his lordship or to the people of Birmingham? Land should not be taken away without compensation. The State might create Government bonds to the value of the land and pay interest of three per cent. The land would greatly improve by use. It would be put up for auction, and let to the highest bidder, and when the lease expired it would be put up again.—Miss NADEN pointed out the fallacy of the idea that the profit on all improvements goes into the pocket of the landlord. This is only true when tenants have neither skill nor capital. If land were nationalised, holdings would be taken generally by the rich, not by the poor. The tenant-right will be saleable, and land will be let and sub-let. If this be prohibited, houses and improvements will still be let, and people who now pay exorbitant ground-rent will then pay exorbitant house-rent.—Mr. CARTER said that the present land system interferes with the general development of the country. The situation of Wolverhampton is better than that of Birmingham, but, as a few landowners in Wolverhampton would not allow their land to be built upon, the manufacturers moved to Birmingham. The system damages railway schemes, and occasions the present high charges for passengers and goods. Liberty of voting is also taken from tenants.—Mr. LEDSAM said that before the land could be nationalised there must be an Act of Parliament, and this would never pass the Lords. If coal mines were rented from Government, a higher price for coal would be demanded. The State would be a hard landlord.—The debate was continued by Mr. Parry, Mr. O. Bodington, Mr. Irvine, Miss Ellerman, Mr. Ehrhardt (who moved an amendment, inserting the words "perpetual motion" after "land nationalisation"), Miss Brierley, Mr. Groom, and Mr. Love.—Mr. COOPER, in replying, said high rents deprived tenants of money which they might use in educating themselves, and thus acquiring "skill and capital." If the Lords rejected the bill the Commons would appeal to the country.—The meeting having decided that the amendment should not be put, the voting on the original motion was as follows: affirmative 9, negative 36.

THE MASON COLLEGE CHEMICAL SOCIETY.

February 27th.—Vice-President (Mr. Nicol) in the chair. Thirty-three members and three visitors present.

The Secretary read the rules, drawn up by the Committee, which were put to the meeting and carried unanimously.

Mr. Adams read a paper on "The Physical Properties of Gases, with special reference to the researches of Graham." After explaining the phenomena of diffusion, he referred to *Maxwell's Sorting Demon*, and touched upon the critical point of gases. Abstracts were read from the following of Graham's original papers: *On the Absorption of Gases by Liquids* (1826), *On the Finite Extent of the Atmosphere* (1827), *Longchamps' Theory of Nitrification* (1827), *On the Influence of Air on the Crystallization of Saline Solutions* (1828), *On the Diffusion of Gases through each other, and their Separation by mechanical means* (1828), *On the Oxidation of Phosphorus and its Prevention by different Vapours* (1829), and *On the singular Inflation of a Bladder filled with Coal Gas and placed in Carbonic Anhydride over Water* (1829).

The Chairman called upon Mr. Hough to open the discussion. He was followed by Mr. Love, who congratulated Mr. Adams on his condensation of Graham's researches.—Mr. Turner spoke of the vast amount of work done by Graham, whose great object was to understand the movement of an atom.—Mr. Adams then proceeded to show some experiments on diffusion.

A vote of thanks to Mr. Adams was proposed by Mr. G. H. Harrison, and seconded by Mr. Featherstone.

THE MASON COLLEGE PHYSICAL SOCIETY.

On Tuesday, February 26th, a meeting was held in the Physical Laboratory in order to form a Physical Society. Professor POYNTING was in the chair.

The following resolutions were proposed and seconded—

1. That a Society of Students of Physics, Astronomy, and kindred subjects, be formed in Mason College, for which all students of the College shall be eligible as members, and that this society be entitled "The Mason College Physical Society."

2. That the Professor and Demonstrator of Physics, for the time being, be respectively President and Vice-President *ex-officio*.

3. That a Committee of eight members be appointed.

4. That the Committee elect from their number a Chairman and Secretary.

On the bringing forward of the first resolution, Professor POYNTING briefly suggested some lines of enquiry which might be pursued, including astronomy, history of physics, meteorology, and even metaphysics. Such a society was advantageous in affording scope for a student to follow out any specially congenial branch of physics, and to pursue the study beyond the relatively narrow limits of a lecture.

Mr. LOVE followed with some appropriate remarks, in which he re-echoed Professor Poynting's sentiments, and felt sure that there were students who were competent to undertake any, or even all, of the special subjects named by the professor. He also gave a sketch of the circumstances under which the proposed society was being formed.

The Committee elected were—

Mr. Brown	Mr. Housman (Secretary)
Miss Charles	Mr. Kellett
Mr. Complin	Miss Paul
Mr. Percy Groom (Chairman)	Mr. Pickard

After a vote of thanks to the chairman the meeting terminated.

THE MASON COLLEGE BOTANICAL SOCIETY.

In November of last year Professor Hillhouse invited a number of his senior students to join him in forming a Botanical Society on the lines of the *Seminar*, which forms so valuable a portion of German University instruction. By the kind invitation of the Professor the meetings were to be held fortnightly at his residence. As he was very shortly afterwards changing his address, the first general meeting did not take place till Saturday, March 1st, when the Society was formally inaugurated by an address by the President, Professor Hillhouse, on the subject of "Apposition *versus* Intussusception."

The following is a short sketch of the constitution and objects of this first formed of the College Scientific Societies. Its meetings will be held fortnightly, on Saturday evenings, during the College terms, each meeting being devoted to the critical discussion of some recently published botanical investigation or investigations. Each

member will take it in turn to give a full, and, as far as possible, critical account of some special subject. The discussion which will follow is to be perfectly free, no adhesion being expected to any particular school of thought, whether of text-book or lecture room.

In order better to carry out the objects of the society, namely, to enable students to become fully acquainted with current researches which have not yet found place in the text-books, the society is for the present limited to those who have attended one full course (at least) of botanical lectures at the college (they being members by right); with such others as may for special reasons be elected, whether from amongst past and present students, or outsiders. The Professor of Botany is the president, Mrs. Hillhouse, honorary, and Mr. Percy Groom, elective vice-president, Miss Jessie Charles, secretary.

The next meeting of the society will be on Saturday, March 22nd, by special invitation, at the residence of Mr. W. Southall, when Mr. Groom will give an account of Meyer and Schimper's recent researches into the origin of chlorophyll and other pigment bodies.

OPENING OF THE STUDENTS' COMMON ROOM.

On Saturday, February 23rd, the Founder's birthday, a meeting of professors and students was held to celebrate the opening of the new Common Room, recently erected under the superintendence of the Steward, Mr. W. Hodgkiss. The Bailiff (Dr. Heslop) was in the chair. In opening the proceedings the Bailiff said that the Council and Professors had long desired that a room should be provided where the students might meet for conversation and intercourse, and which might be regarded as "Liberty Hall." In this they had been warmly supported by the Chairman of the House Committee (Mr. Bunce). Professor Poynting suggested that the management of the room should be entrusted to a committee elected by the students. He was sure that the authority of such a committee would be liberally recognised by the Council. The Bailiff then declared the room open. Mr. Percy Groom then said that he was deputed by his fellow-students to thank Dr. Heslop for that handsome and opportune birthday gift, and to request his acceptance of the following address, presented as a genuine and whole-hearted expression of their grateful feelings. "To Dr. Heslop. We, the undersigned past and present students of the Mason Science

College, beg to offer you our sincere thanks for your active and untiring interest in our College, and for the generous gifts of books with which you have enriched our library. As day by day we have increasingly realised their value in affording us help in our work, and the means of acquiring general knowledge and culture, an earnest desire has arisen amongst us to express to you the deep feeling of gratitude which is uppermost in our minds—a feeling which must be shared by all who recognise how largely your wise munificence will contribute to raise ever higher and higher the intellectual standard of Birmingham. We trust that you may long remain in our midst, in the enjoyment of health and strength, to watch over the work which has so greatly prospered under your care, and that you may live to witness some of the fruits of those benefits which you have conferred upon our College in the prevalence of higher ideals of scholarship and conduct."—Dr. HESLOP having expressed his thanks to the students the proceedings terminated.

PRIZE COMPETITION.

The judges have to announce that, of the nineteen versions sent in, none combined accuracy and style in a degree sufficient to merit a prize.* They therefore offer the same prize for renewed competition. Versions of the following passage must be handed in to the editor by May 3rd. The conditions will be the same as those announced last month.

"Denken! rief der Eidechs mit einem scharfen, vornehmen Tone der tiefsten Geringschätzung, denken! wer von euch denkt? Mein weiser Herr, schon an die dreitausend Jahre mache ich Untersuchungen über die geistigen Funktionen der Thiere, ich habe besonders Menschen, Affen und Schlangen zum Gegenstand meines Studiums gemacht, ich habe so viel Fleiss auf diese seltsamen Geschöpfe verwendet wie Lyonnet auf seine Weidenraupen, und als Resultat aller meiner Beobachtungen, Experimente und anatomischen Vergleichungen kann ich Ihnen bestimmt versichern: Kein Mensch denkt, es fällt nur dann und wann den Menschen Etwas ein, solche ganz unverschuldete Einfälle nennen sie Gedanken, und das Aneinanderreihen derselben nennen sie Denken. Aber in meinem Namen können Sie es wiedersagen: Kein Mensch denkt, kein Philosoph denkt, weder Schelling noch Hegel denkt, und was

* Copies of an "authorised version" will be obtainable from the editor.

gar ihre Philosophie betrifft, so ist sie eitel Luft und Wasser, wie die Wolken des Himmels; ich habe schon unzählige solcher Wolken stolz und sicher über mich hinziehen sehen, und die nächste Morgensonne hat sie aufgelöst in ihr ursprüngliches Nichts;—es giebt nur eine einzige wahre Philosophie, und diese steht in ewigen Hieroglyphen auf meinem eigenen Schwanze."

OUR CONTEMPORARIES.

We are sorry to notice that the editor of *The Haileyburian* has been compelled to impress upon his readers the amount of "serious and anxious labour implied in the publication of a periodical of such a character." It is, indeed, remarkable that the majority of editors continually burden their readers with statements similar to this, and yet after all receive so little sympathy. We should advise the gentleman in question to try some other method. And so you rejoice in the fact that your village is "far from the madding crowd," do you? How dreadfully lonely you must be. The writer of the article on *Fagging* is evidently one of the upper boys. There can be no spirit of greatness in a man who mercilessly endeavours to make the lives of his younger school-fellows miserable. We will leave it to his own sense of justice to determine whether or not he would hold the same opinions if he were one of these juniors.

The Institute Magazine contains an interesting article upon *Weeds*, although we feel inclined to disagree with the writer on one or two points. We would especially hold aloof from stating that a city street lacks picturesqueness. The poem entitled *Friendship* is above the ordinary, and we might, if only we were prophets, congratulate the author upon a bright future.

The King Edward's School Chronicle favours us with an article upon a *Night's Enjoyment*. While reading it we felt that the writer was young, extremely so, and that attending evening parties was not his forte. By the way, are not the hideous faces referred to somewhat dependent upon the shaver, and the number of times he has performed that interesting operation? To judge from his last sentence, the author's estimate of his fellow-creatures is rather a poor one, to say nothing of their experiences.

"IS IT NOTHING TO YOU, ALL YE THAT PASS BY?"

The cry of the worn of the world
  Has gone through the earth,
From darkness and misery hurled
  To the joyous of birth,
And the wail of the thousands who sin
To the few who are pure in their mirth.

We have heard it, we children, who stand
  On the threshold of life;
Have seen the thin threatening hand
  Clenched fiercely for strife,
And the gaze of the thousands who sin
With the gloom of their fathers' sin rife.

And we make us the sign of the cross,
  Each after his way:
Some religion of gold or of dross—
  It is seemly to pray.
And the prayer of the thousands who sin
Is a curse on the light of the day.

Yet nor learning nor pleasure nor art
  Makes answer to these;
In the world of delight is no part
  For the dregs and the lees.
Do you *know* how these thousands all sin
While you pray, you that worship at ease?

WIRD.

COLLEGE INTELLIGENCE.

Dr. Lapworth.—Every one who knows Professor Lapworth, and especially his colleagues and pupils, will be glad to learn that the Senate of Aberdeen University has conferred upon him the degree of LL.D. Now that he is slowly recovering from a long illness, we hope that this event will come as an administration of that pleasantest of reminders—"The happiness cure."

Professor Hill.—Our readers will learn with a mixture of pleasure and pain that Professor M. J. M. Hill, M.A., Fellow of St. Peter's College, Cambridge, and of University College, London (elected Professor of Mathematics at the opening of this College in 1880), has now been elected to the chair of Mathematics in University College. Whilst we most cordially congratulate him on

this distinction, we are compelled to lament the loss of a most able and valued teacher.

Mr. Greatheed.—The Treasurer, has received from Mr. William Greatheed (the late Sub-Editor) a donation of £2 towards the Magazine funds. In cordially thanking Mr. Greatheed, on behalf of our readers and ourselves, for this gift, we feel that we are expressing only a very small fraction of the gratitude due to him for the unselfish and untiring services which he has rendered to the Union and the Magazine.

Queen's College.—We are sorry that the Queen's College correspondence, including a report of the very successful conversazione, arrived too late for insertion in this number.

We hope to publish the next number of the Magazine on May 20th.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: names will not necessarily be published, but are required as a guarantee of good faith on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Dear Madam, — We, in England, possess the almost peculiar advantage of being able to write to the "Paper" if we have a complaint, and, while bearing in mind that this liberty is liable to abuse, I have to draw your attention to a matter which obviously requires notice.

There is, I believe, a rule in connection with Debates at the "Union" meetings that none of the speakers be allowed more than a certain time, which varies for the openers and the after speakers. This rule was in several cases totally disregarded in the last debate. Such disregard nullifies the benefits resulting from the forced habit of short speaking; I mean the power of expressing with tolerable rapidity, in a concise form, a certain number of ideas. Long speeches in addition make it impossible for many persons to speak.

Another matter for regret, which, as far as my limited knowledge goes, was totally without precedent, was the extremely strong language employed by several speakers. It seems to throw doubt on the wisdom of selecting political subjects for debate. One speaker alluded to landlords as "vultures." I think speakers might have some regard for those who are present, some of whom may belong to the "vulture" tribe. Another rhetorician invited "Radicals" to vote *for once* in accordance with their consciences!! Finally the climax was reached in the ridiculing manner in which one of the leaders of the debate *answered (?)* his opponent's arguments.

Our "Union Meetings" have hitherto been models of politeness and pleasantness; shall they be changed thus? It is neither agreeable nor satisfactory to himself for the chairman to call upon persons to sit down. Neither is it pleasant for any member to rise and make remarks which *must* be regarded as personal, about the length and language of a preceding speech. Hence I take refuge in your pages.

I am, Dear Madam,
Yours sufferingly,
PERCY GROOM.

Mason College, March, 1884.

[We look upon this letter rather as a compliment to the general tone of our meetings, than as a very serious charge against the last. Sharp words spoken in the heat of debate are pricks, not stings. They leave no venom behind.—ED.]

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MAY, 1884.

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PUBLISHED BY

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(Conducted by Students of Mason College, Birmingham.)

No. 3, Vol. II. **MAY, 1884.** Price 6d.

CALENDAR.

May 20.—Tuesday—Microscopical General Meeting. Paper by Professor W. Hillhouse, B.A.

,, 22.—Thursday—Microscopical Society—Sociological Section.

,, 23.—Friday—Union Meeting—Papers: "An Ancient and a Modern Philosopher," Miss Hadley; "Addison," Mr. Penn.

,, 27.—Tuesday—Microscopical Society—Geological Section.

June 6.—Friday—Union Meeting—Debate: "Where ignorance is bliss, 'tis folly to be wise."

,, 16.—Monday—Matriculation Examination begins.

*EIGHT WEEKS IN INDIA.**

* * * Thus then in this land of sunshine and flowers, and tamarind and mango, of green parrots and doves, of temples and mosques, of Sikh, Jain, and Parsee, of Rajputs and Mughals, of tent-life and elephant-riding, of primitive tribes, but also of best British thought and action, it is certainly hard to know what to choose for description.

But there is not much doubt about beginning with Bombay. The coast forms promontories and great bays, and is just rocky enough not to spoil the general soft fairy-like effect as the steamer nears the harbour. Woods of palms are seen amidst the low-roofed far-reaching city. The towers and spires of modern buildings show to western eyes that it *is* a city. The Ghâts, or shore hills, rise rich and hazy behind the city. But the charms of the first effect of Bombay I cannot describe, and must only allude to a few detached scenes when there. The biggest hotel having been brought out ready made from England is many-storied, and

* The above are extracts from a paper read by Miss D. Albright at a meeting of the Mason College Union, 1884.

altogether said not to be well adapted to Indian customs. But it is near to the harbour, and the blue bays, and to the European city buildings, and the spacious English shops, and the promenades; and it overlooks a very wide street, and the bright gardens of the new university buildings, and the cathedral in the Lombard style. All this does *not* look European, because of the exceeding gayness of blazing sunshine and the throng in bright or white garments. The hotel is in delicious shade of mango-trees, under which congregate cabs and conjurors and snake-charmers. The latter keep shouting about their performances with a snatch or two of English to the new arrivals on the balconies. To turn indoors, *white* is the first effect of the huge dining saloon. It is crowded with waiters, all in white, and the punkah-boards, with their long calm swing from the lofty white ceiling, are covered with white, and from these hang deep white linen frills; then there is the whiteness of table-cloths and of many a white linen suit among the guests. The next impression is that you have become strangely deaf. This is because innumerable waiters are hurrying to and fro to supply the heterogeneous demands of an Indian breakfast, and yet there is no tramp or creak, for all are barefoot. This absence of *noise* is a real luxury of the East. There is another thing a traveller soon notices, viz., the queer heaps of dusky something left about in the passages and verandahs of hotels and bungalows (especially towards night) and about all the stations. It is only after the horrid sensations of trampling on living breathing man, that you learn once for all to beware of heaps! It is curious how the servants drop to sleep anywhere the moment they have drawn their clothes over feet and head. * * * *

May I take you for one moment out to the fashionable promontory of Malabar Hill, where luxurious bungalows are surrounded by beautifully-kept gardens? The verandahs there are sometimes three deep, so the coolness of drawing-rooms is delicious. In order to make an extra bed-room, a bit of the innermost verandah can have its blinds down and be screened off from the rest, and given to a guest without fear of his being cold at night.

The people with whom we stayed a night were busy with the season's treats for servants and workpeople, English and native. A Christmas tree, got up on a very warm afternoon (January 11), on a delicate large-leaved plant, tropical and drooping, seemed scarcely to rival the success of its kind at home, though the soldiers' children probably enjoyed it.

On the top of Malabar Hill are the Towers of Silence, where the Parsees commit their dead to the waiting vultures. No access is allowed to the enclosure without leave, and the Towers are not high enough to be striking. Bordering the shore-road back to the city is the public cremation-ground. Its long wall is pierced here and there with gratings where the glow of constant fires tell what is within.

It is very strange, in these large cities, to see the extreme contrasts of western civilisation and unaltered native customs mingling at every turn. The effect is sometimes as if two wholly distinct humanities were living on the same spot, and neither conscious of the presence of the other. For instance, on the Rotten Row of Bombay, the eye may turn from decorous fashionable carriages and riders to a bare-legged brightly-draped crowd with tum-tum and dirges, surrounding the bearers of a corpse, clothed and propped up to sit with a commanding pose in a tinselled palanquin. The fish-girls who, with basket on head, trot along the New Street of Bombay, popping in and out amongst the dapper English, have little more clothing than a tight swathing from the waist. * * * *

People at the Stations.—Natives are so very fond of the train, and travel so much—for pilgrimages largely—that although they generally go third class it is their fares that make the lines pay. They will sit in the train crowded and patient for a whole day or night. At every station water is cried by a man with big brass lotas (brazen jars with wide rim) hanging from a bamboo across his shoulders. Piles of balls (sweetmeats or made of grain) are brought on trays on the head; and red betel nut for chewing made into neat little packets with a bit of plantain leaf, is also offered on trays. There is plenty of bustle at the stations, and one does not soon tire of watching the people on the platforms, or waiting with carts and cattle at the level crossings. There is the ordinary agriculturist with wife, children, and bundles — the fierce Jewish-featured, wild-looking, muscular Afghan trader, with garments coarse and carelessly thrown on—the Sikh, attractive, respectable, and clean, with well-cut but sad countenance, and beard twisted round his ears—the unmistakable broad, large-limbed Rajput—the Brahman, tall, narrow, and slim, with his sacred thread and intellectual forehead, but often unbenign expression — the clay-coloured Fakir, bony and dusty—the sleek, well-to-do merchant, dressed in silk and jewels—a Raja, too, or possibly a

Maharaja, here and there, of varying character and repute, but generally somewhat uglier and stouter than his subjects. All these, with the women of the lower castes, make groups most romantic and novel as they pace about, or huddle in corners, or lie in rows asleep, or have water poured into their mouths, or squat being shaved, or do nothing at all, according to nature and circumstances.

The natives have little idea of the value of time. If they think of going anywhere they set trudging off from their village whenever they happen to be ready, or the village astrologer thinks fit, and when arrived at the station they just wait for the right train, even supposing that it does not come till next day. The low-caste women go about without much embarrassment, beyond keeping their head coverings in order. But there is a difficulty with the higher caste. At one station of the main mail line, as it skirts the desert, I remember a delay of fully twenty minutes on this account. A certain nawab of the neighbourhood—Tonk by name—was moving his whole zenana. The three compartments of a third class carriage (stingy man!) were filled with his ladies. Arrived at his station, carts with gay awnings drawn by white bullocks were in waiting; but to get the ladies from the railway carriages seemed no easy matter. The carts were brought close up to the station palings and the train backed till the ladies' carriage was opposite. Great sheets were held in readiness to throw over them the moment they emerged; but this they steadily refused to do. The officials began to get anxious; station gates were opened wide and the carts backed up to the railway carriage door. But to no purpose! the half yard of possible exposure seemed an insuperable obstacle. We were walking up and down, taking good looks now and then at the coy bright faces which were causing so much trouble. But at last, it was past a joke, so the station-master had to be scolded, and the end of it was that after a good deal more delay and shunting, the nawab's ladies were left behind on a siding, carriage and all!

Himalayas.—The afternoon train from Calcutta, for Darjiling, reaches the Ganges shore the same evening. Even at the low water of winter, crossing the river takes an hour, and table d'hote is prepared for all passengers on the steamer. On the sandy river shores they take train again, to be aroused early next morning at the junction of the two-foot-gauge mountain railway. This is the place for a moment's recollection as to the physical geography and

anthropology of the region, *e. g.*, "The monsoon wind drives before it, from distant tropical seas, masses of vapours for months every year, to dash them at length on the *slopes of the Himalayas.*" "Many aboriginal tribes remain in the same early stage of human progress as that ascribed to them by the Vedic poets more than three thousand years ago; and a great variety of these non-aryans people the spurs and *slopes of the Himalayas.*" Thinking then of the monsoon and of the non-aryans, and with the damp fever-breeding jungle just visible in the misty dawn around, the passengers begin the ascent. The little train, consisting of two or three compartments (open at the sides), and some trollies behind for natives, has 7,600 feet to climb. It takes possession of the still-used road, it skirts precipices, doubles on its track, and winds about and over hill-sides, in comparison with which it seems like any little black-beetle. At first the view is out back to the plains, but as the train gets further in endless green ranges encompass it about. There is much teak-tree and tangled undergrowth (quite deep enough for tigers!), and this sets off the broad glowing-green leaves of the abundant wild plantain, and the stately cotton-tree —straight, tall, and bare of green, but laden with heavy red flowers. So much, at present, for the effects in vegetation of the vapour-carrying monsoon—effects visible enough.

As for the non-aryans, what joy it is to see their stick-and-leaf sheds by the edge of the road—the real thing—a tiny habitat built in ten minutes, and people to think it enough! And then the little contrivances for propitiating the fairies, and the shreds of rag and other charms strung about here and there in odd corners among the trees or rocks, because there is really a bad ghoul there to be kept off; and the smears of red-lead on the stones of a knoll or under a tree, shewing the "high places" and the "groves" to which offerings are brought. The non-aryans seem very real too. And here, about half-way up, the tea-plant steps out of advertisement drawings into real life. Steep acres of the dark, neat, round little shrub! The rich forest growth gone, for the sake of the rich growth in the pocket. It does spoil the hill-sides, just like the Rhine vineyards. The snows are scarcely to be seen at all until the train rounds the last slope, and then—well, it is dark and cold; and hospitable, big, open wood fires in all the hotel rooms are extremely welcome.

The Darjiling promontory points straight at the Kinchinjunga range, forty miles away. Between is a valley, as deep down as any one likes to think, from the opposite side of which rises "ramp"

after "ramp" of wooded hills and then of rocky ones up and up towards the glaciers. The glaciers then mass up and up, towards the topmost region of peaks, "untrod, infinite, wonderful." All this, with the semicircle of great snows to right and to left, Darjiling itself seems to have a little proper humility in not facing quite; it seems to be turning away a little dazzled, and shading itself from looking at too much of wonder and glory. But the Lieutenant-Governor of Bengal's house does face it, and travellers go out on their balconies and bear to look: they shiver and marvel, and marvel and shiver, as the dawn lightens, and up away there, Kinchinjunga becomes golden and rosy out of the pale blue heaven; gradually it seems to take connection with the mountains and with the unfathomable depths, and the mists below, and with all the vast snows to right and left, and, indeed, with the world in general. From the mosque comes the solemn cry that "Allah is great!" and then day begins.

There is a white frost every morning at Darjiling in January, and for us there was a bright moon every evening. There are many paths about the hills. The air there makes it a pleasure to walk from early to late: it is warm enough for out-of-doors roses, and for picnicing. Most of the time you see it all—this grand region which seems to grow vaster the longer you creep about on the small point of it. But sometimes mists take it away for awhile, only to make the grandeur all come back afresh; or they leave visible only the little creamy top of Kinchinjunga hanging as it were up there more unearthly than ever. Or sometimes you get quite buried, for a mile or two, by the forest trees in all their wildness; here they are chiefly rhododendrons and magnolias, and cedars and ilexes, and tree-ferns tall as palms. (An English Forest Officer's tiny tent which we came upon one day suggested a very lonely life.) The rhododendrons and magnolias blaze with bloom in the spring; in January they are blue and sombre enough, but relieved with the bronze of the mosses, and ferns, and orchids, which cluster round their trunks. Here then, in these lofty snows and these dense forests is more than could have been conceived of the effects of the vapour-carrying Monsoon.

Here, too, is Buddhism. It has braved its way, I believe, over the passes from Thibet; for its form is not that of the pure old kind. And it is said that the remote Ceylon is the only foothold in India kept by the first development of Buddhism. In one of the rude villages we passed, the quarter of a Buddhist monastery

was only distinguishable from the rest by the number of rags and tatters (alias charms and flags) strung about its huts. In another village was a temple, situated on a little plateau much as a mountain village church in Italy. In front were rough-looking men and boys making a noise with conches and trumpets and timbrels. On entering the smeared and gilded arches of the porch, the first sight is an ancient man crouching in the corner; a large painted praying-wheel is fixed above him, and he is mumbling over the long greasy roll of prayers which he winds off it. Pushing aside the curtains you enter a dark and excessively close chamber. Sitting on the opposite ledge is a long row of gilt images cross-legged and contemplative; shelves above and around are closely occupied by more and more of smaller size: those on the chief ledge are Buddha and his compeers, the little ones on the shelves and rafters are all saints. Curtains and daubing and gilt complete the effect of the small chamber, so close and dark and dirty that it needs determination to stay even long enough to make out thus much. But it once was *Buddhism*, and it is evidently what these people live by.

They are very unlike the pale, mild Hindus of the plains. Their characteristics are strength and sturdiness, not suppleness. They have a rich, almost glowing, tint, and a Mongolian cast of features. The men plait their hair and wear earrings and petticoats. One of our four bare-legged bearers wore nothing save a deep green-cloth blouse roped in at the waist; his long black hair, high cheek bones, and slant eyes were surmounted by a discarded bowler, which, I think, constituted him leader of the party! ("Hat-fellows" is one of the names by which Indians distinguish us. In fresco, on a temple wall, we saw one day a rough representation of our ineffectual stormings of the mud ramparts of Bhartpur. That the soldiers might be unmistakably recognised as English, each one was provided with a black top hat; and the effect was comic.) But the time to see the hill tribes is when thousands gather up at Darjiling for the Sunday market. You can wander amongst them and their wares, for they are far too many and too busy to notice a stranger. It would be hopeless to describe them all—from Bhootea, from Lepcha, from Sikkim, and Nepal. Those of Nepal are Gurkhas, a purely non-aryan tribe, who stuck by us in the Mutiny and covered themselves with honour in Afghanistan. After the last campaign, the Highlanders had become so attached to the Gurkhas, although

they could exchange scarcely a word, that they insisted on playing for them their own favourite Scotch tunes, and shewed all possible signs of affection as the little Gurkhas marched away. They have frank, bright faces; and a regiment of these plain, sturdy little fellows is about as different from the indescribably graceful, lithe, brightly-dressed, sallow-faced Bengal Lancers as a company of Laps from one of Spaniards. * * * *

[*To be continued.*]

LONDON LETTER.

Perhaps many beside the present writer have been puzzled at the wealth of pertinent fact and gossip contained in the best specimens of our provincial papers, usually under the head of "Our London Correspondent." Some ubiquitous person of very high rank (for did he not attend the *levées*?), perhaps an attorney or solicitor-general (for he was largely in the confidence of the judges), but who might possibly after all be the surgeon or physician-extraordinary to the Queen (for he seemed to know all the secrets of the medical profession), was pleased to select, quite casually, as a sort of canine pet, one of the many country journals, and direct to it a fair portion of the social crumbs which naturally fall from a metropolitan table creaking under the weight of society's *embarras de richesses*. He was actuated doubtless by some such motive as Clough's plutocrat, who says—

> "Thus I sat at my table *en grand seigneur*,
> And when I had done threw a crust to the poor;
> Not only the pleasure, one's self, of good eating,
> But also the pleasure of now and then treating.
> So pleasant it is to have money, heigh ho!
> So pleasant it is to have money."

My delusion was somewhat dispelled when, happening to want information from a compiler, I received enclosed with the reply a card stating that Mr. —— was London correspondent for nineteen provincial journals, and that he would be happy to pay me a certain modest sum per line for all information received. Nineteen journals! Fancy writing nineteen London letters every day for 365 days (bar Sundays) in the year. But this second illusion was dispelled by a recent paragraph in the papers, which pointed to a strange coincidence between the London letters of at least four provincial papers published in totally different counties.

Under these rather disconcerting circumstances the College may or may not be pleased to hear that it has a complete monopoly of its London correspondent. I cautiously add "*may not* be pleased," for I fancy that one of Brigham Young's streetful of wives would have very much less difficulty than a monogamic Mrs. Caudle in shaking off the marital yoke.

"In the world, yet not of the world," is a phrase very glibly run off the tongue, but I doubt if anybody but myself has a very vivid idea what it means. Here is the recipe for understanding it. Take a small portion of the world, say London, go to business each day from ten o'clock till six, or possibly later: when the office work is done, go home and read for an exam., or bury yourself in your favourite bookshelves, and spend your Sundays in the country, and I will undertake to say that at the end of ten years you will know considerably less of London than Dr. Schliemann knows of Troy. But go back to London after an interval, and resolve to devote one portion of the day — the afternoon or evening — to studying the wonders there aggregated, and I warrant that in a fortnight your respect for the little village will rise considerably, and that you will have formed links of interest which will transform you from a casual particle to a fraction of a vast, organised, throbbing whole.

You could not do better in the first instance than let your tastes come to you again as the tastes of a little child, and go to the Zoological Gardens. You need not stay long over the white elephant,* though you will be amused at hearing from the regular staff that the attendant priests give a great deal more trouble by their behaviour than the huge animal to which they have to attend. "A regular nuisance them holy boys, that they are," confided an attendant to me, and their offences seemed to be too monstrous for utterance. But pass on to our cousins in the monkey house. Your biological reading will have taught you that they are divided into eastern and western hemisphere inhabitants. The chimpanzee had been transferred to new quarters, where he sat in a tub like a well-contented Diogenes. The keeper was curious to know how he appreciated his new home, and observed with much satisfaction that he looked as gay as an alderman as he sat and crunched away at a bone, and, if gay means rotund, he certainly *was* gay. To vary the proceedings we hammered at the boarded partition of his

* Since these lines were written Mr. Barnum has removed his property. *Sic transit gloria Americana!*

cage. In a very dignified way, Chimp put down his bone, uncrossed his legs, got up and peered through the cracks. He soon decided not to put himself out for our nonsense, and reverted to his bone. A little Java monkey is a great favourite with the keepers. "'Ee's a rum customer, 'ee is," was the verdict delivered with almost paternal affection; and I watched him for a quarter of an hour go through no undiversified programme of practical jokes.

But the Zoological Gardens must not monopolize our time. Let us and go and hear Professor Flower, at the College of Surgeons, lecture on species of the human race. At the recent Church Congress the professor was had down to Reading to instruct the clergy how man came to be man. First notice that Savory of St. Bartholomew, in a grand robe, is in the chair, and that the eminent physicians on the floor of the theatre are numerous and bald enough to make a Golgotha. How tenderly the professor pats the skull of that Tasmanian woman who was the last of her race and measured four feet eleven inches! There are in the museum thirty Tasmanian skulls, and the series is priceless; for with the best intentions in the world we have, in less than a century, killed off the whole native race, consisting of many thousands, and neither for love nor money will the world secure any more of these precious relics. Between them and ourselves there was fixed the great gulf of cranial capacity, so that we could not pass to them nor could they amalgamate with us. As our cultivation spread they were driven back on to the hunting ground already occupied. Quarrels and wars between themselves naturally ensued, and those who did not perish by the sword exterminated themselves with that more potent engine the rum barrel, which they no doubt received as a divinely inspired soma juice which would make them as gods, knowing good from evil. They had the misfortune to be a very insulated and isolated race right down in a corner of the globe, and separated from Australia by 150 miles of sea. So for thousands and thousands of years (the professor's words, and I hope he will square them to his satisfaction with other authorities) they bred and interbred without any crossing, and if they did nothing more they certainly produced a tribal skull so uniform in its pattern that it is likely to serve as a standard or unit of measurement. The professor gloated over the good fortune of the College in possessing these skulls. It had, in fact, "cornered the market." All the king's horses and all the king's men couldn't put the Tasmanian humpty-dumpty back on the wall. The College had wisely speculated

"for a rise." Well! I didn't exactly mean that; it would spoil everything.

I can't go to press without saying a word on the British Museum. It was the fashion once to imitate Lydia Thompson in calling it the "Britishest Museum that ever you did see." If you want a glimpse into infinity, give the stars and the microscope and the other stock receipts for once the go-by, and fill up a few tickets with the names of books which you may wish to consult. Perhaps you would like to verify some particulars about the Mason College. Well, here are the Calendars, there is the *Daily Post* with the account of the "Inaugural Ceremony," when Huxley and Max Müller had their little set-to, and Dr. Dale stood up for things-in-general whose existence was being threatened by the things-in-particular known as science; here again is the "Life and Miracles of St. Josiah Mason," printed "for private circulation" and public museums, and heaven (St. Josiah inclusive) only knows whether you will be had up in any court of law or etiquette if you dare to quote from a book so printed. Add to these the Reports of the Philosophical Society, the *Midland Naturalist*, the much-to-be-remembered cartoons of Mr. E. C. Mountfort, and every amusing little bit of municipal scandal in *Town Crier* and *Dart*, and you will see that the whole of Birmingham and, by implication, of John o' Groat's house and the Fiji Islands, mirrors itself within that omniscient rotunda. All you have ever read, good or bad but chiefly indifferent, that which you were ashamed of reading and that which you were proud to quote, the idiotically-selected school books, and the scalping adventures which enthralled your hobbledehoyhood in your evolutionally savage epoch, all, I suppose, may there be safely reckoned on. And when your brain has made its meal and rumination is beginning, think and be thankful over the wonders of organisation and intelligence, ever diverging into unrealisable magnitudes, so stored up for you and me. Go on your knees, iota among vertebrates, and pray to the deity whom you most affect, that no Socialistic Dynamical Improver may interfere with the balance movement of that mighty clock which registers each day in its catalogues with a hundred volumes.

This is as near as I have been able to get to a Religion of Humanity.

W. GREATHEED.

LANGUAGE.

The languages which are spoken throughout the civilized and uncivilized world at the present time came into existence by a very gradual process. In pre-historic times there no more existed subjects, predicates, objects, and adjuncts, than there existed an electro-motor or a complex locomotive engine.

Many, doubtless, would be inclined to urge, even in this advanced age of ours, that man, being the only animal endowed with the faculty of speech, must have received that faculty by the direct interposition of the Almighty. They would affirm that language was given to man in its entirety, and that speech was brought about by an inward impulse, an impulse springing from the soul, and in no way depending upon outward stimuli.

Such an assertion as this, however, is totally antagonistic to the truths of comparative anatomy. Although the intelligent use of articulate speech is confined to the human race, yet many other species possess vocal cords, by means of which they give utterance to numerous and diverse noises; and further, the power of communicating wants and desires by sounds or other signs is very common throughout the animal kingdom.

In the face of these facts, and many others which might be added if only space allowed, one cannot but think that man, like other animals, has acquired a habit of observing and of imitating, and that he has utilized this habit for purposes of social intercourse. If, on the other hand, speech is brought about by a direct impulse springing from within, it seems much more likely that he would give utterance to his feelings when in a solitary state than when surrounded by his fellow-creatures. For in the former case he would require something to wile away his time, while in the latter, the presence of his fellow-men would be sufficient company for him.

Again, if speech is the direct result of reason and does not depend on mimicry, then it must inevitably follow that he who has never heard a sound will give articulate vent to his feelings just as readily and spontaneously as any one else. But it is a notable fact that men born deaf are peculiarly silent, and have apparently no desire to talk.

We may pursue the argument even further than this. Man is generally charitable towards his fellow-man, and will usually be desirous of informing a companion of an approaching danger. To do this as well as possible, he will exercise all the skill at his

command. He possesses the faculties of observation, distinction, and imitation, and will make use of these as means of communication. He notices, for instance, that the roar of some beast of prey is especially distinguished from that of other animals by some special quality of tone or loudness, and in order to inform his companion of the approach of such an animal, he will attempt to imitate its characteristic howl, growl, or roar.

We thus see that the first sounds uttered by man were *onomatopœic* in their nature, and that far from owing their origin to any "inner light," they arose from the desire which one individual has to communicate want or danger to another.

An anatomical structure capable of being adapted to the production of intelligible sounds, coupled with the influence of the environment, brought about the development of this wonderful and useful faculty. Now just as the necessity of moving large objects occasioned the invention of the lever, so the necessity of communication occasioned the introduction of speech. Further, just as the complex steam engine followed little by little upon the discovery of the mechanical powers, so the use of speech as a means of expressing thought followed upon its use as a means of making known simple needs and fears.

The law of *heredity*—that law by which the natural characteristics of the parent are handed down in a more or less modified form to the child—has very little influence upon the mode of development of speech. The language of the infant is not a physiological consequence of the language of its parent, for if the child, soon after birth, be removed from England to France, from English speaking people to French ones, hereditary tendencies of character and constitution will appear undiminished, but the child will grow up with a perfect knowledge of the French tongue, to the equally perfect abandonment of the English one. That is, the language which an infant speaks is dependent upon the environment, and not upon any particular tendency inherent in it from its birth.

It is worth while to consider the way in which a child learns to speak and the mental state through which he must pass before the process is complete.

When first a child enters upon this life he *observes*. Of everything he sees, he takes particular note. He invariably stretches forth his hand to touch and feel the object which is placed in his way. Handling it and viewing it in every aspect, he gets a notion of its shape. The next action on the part of the child would probably

be to transfer the object to his mouth and to attempt to bite it. If the body happen to be a hard one, it will hurt his mouth and he will thus learn that certain things are not good to eat. In fact, he learns to *distinguish* between eatables and those things which are unfit for food. The mother will also probably tell her child that the ball, marble, or bead, is not meant to be eaten, whereupon he will attempt to imitate what she has said.

A long time, however, will elapse before he is able to gain that control over his muscles which is necessary for perfect articulation; but, by continued usage, the muscles of his larynx will become more and more submissive to his will, and what was at first a distinct act of volition will ultimately develop into a purely instinctive one.

A. J. COOPER.

THE UNION.

March 28th.—Mr. GREENE in the chair.

An exceedingly interesting address on "Oxford Life in the Eighteenth Century" was delivered by Professor BODINGTON. He began by describing the prominent place held by politics in University life in the time of George I and II, and the vehement Toryism of Oxford. He then gave an amusing account of the manner in which a college dandy, or "smart," spent his day; of the servitors, whose duty was to "clean the shoes and write the exercises" of wealthier students; and of the manner of obtaining a degree. The final examination, nominally including the whole circle of the sciences, was conducted by three M.A.'s of the student's own choosing, all equally ignorant of the subjects treated. In 1802 a reform began, and in 1807 classes were introduced; but although Oxford is now an efficient High School, it is not, as it might be, the "intellectual capital of the country."

Miss STURGE moved and Mr. SMYTH seconded a vote of thanks to Professor Bodington, which was carried by the meeting with warm applause.

April 25th.—Mr. GREENE in the chair.

The programme of the "Readings" was as follows:

Mr. Irvine	"Journalism in Tennessee"	*Mark Twain*
Miss Stamps	"Dedication of the Idyls of the King"	*Tennyson*
Miss Huckvale	"The Owl Critic"	
Miss L. Crosskey	"Donald"	*Browning*
Mr. Smyth	"Selection from the Hunting of the Snark"	*Lewis Carroll*
Mrs. Fletcher	"Hervé Riel"	*Browning*
Miss K. Albright		*Carlyle*

As on a former occasion, criticism was invited at the end of each reading, and the invitation was responded to in an encouraging manner. The critics were—Miss Albright, Miss K. Albright, Miss Ashford, Miss Clarke, Miss Dale, Miss Jordan, Miss Naden, Miss Sturge, Miss Southall, Mr. Barwise, Mr. Ehrhardt, Mr. Price, Mr. Penn. At the close, Professor Hillhouse gave some valuable advice about reading and recitation.

May 9th.—Mr. BARWISE in the chair.

Mr. Rennie was elected as a member of the Union.

It was then proposed by Mr. BARWISE, seconded by Mr. EHRHARDT, and carried unanimously, that Professor Bodington be elected as an honorary member.

Mr. E. CARTER then moved the resolution—"That it is desirable that cremation be substituted for interment." He referred to the extensive adoption of cremation in Germany and Italy, and spoke of the prejudice against it as a survival of ancient superstitions. The idea of being consumed by fire is more pleasant than that of slow decay. The process was then described. It would be both more economical and more sanitary than the present method. Details were given showing the disgraceful condition into which burial-grounds often fell.

Mr. SMYTH urged the necessity of consulting public feeling, which had lately declared itself in Parliament by a majority of nearly two to one against cremation. The detection of the crime of poisoning would often be prevented, since vegetable poisons, and such mineral poisons as arsenic, could not be detected in a cremated body.

Mr. IRVINE said that owing to the unsanitary state of burial-grounds, more murders are committed by the dead than by the living. There is no epidemic of poisoning in India, where bodies are burnt.

Miss EHRHARDT objected that ammonia is lost by burning, and thus the resources of our planet are robbed. Burial when properly conducted is safe.

The debate was continued by Mr. G. ST. JOHNSON, Miss B. CLARKE, Professor SONNENSCHEIN (who suggested burial in light wicker frames), Mr. GROOM, Miss SOUTHALL, Mr. EHRHARDT, Mr. LOVE, and Mr. TURNER.

Mr. CARTER, in reply, said that burial in wicker baskets is a step in the right direction, because it would accelerate decay, which is really a process of slow burning. The parliamentary majority

might be against cremation, but all the scientific men voted in the minority.

The CHAIRMAN then put the resolution to the meeting—affirmatives, 32; negatives, 10.

COLLEGE SOCIETIES.

Physical Society.—March 26th.—The members and a number of visitors were entertained by the President at tea in the Physical Laboratory, after which they adjourned to the Lecture Theatre. The minutes of the preceding meeting having been read, and the rules proposed by the Committee having been passed, Professor POYNTING delivered his Presidential Address on "The Growth of the Modern Doctrine of Energy."

A cordial vote of thanks to Professor POYNTING, and experiments, principally carried on by Mr. LOVE, on Vortex Rings, Colour Sensation, and Chladni's Figures, terminated the Meeting.

Among the visitors we were pleased to notice Messrs. George Dixon and Hookham.

May 7th.—Professor POYNTING in the chair.

Professors Hill, Smith, and Tilden were elected honorary members of the society.

Mr. HOUSMAN read a paper on "The Dynamo Machine."

Professor SMITH offered some criticisms.

Miss CHARLES followed with an interesting account of "Phosphorescence and Fluorescence."

A discussion followed in which Messrs. GROOM, LOVE, and HOUSMAN took part.

The Chairman, in conclusion, announced that the next meeting would be held on May 28th, and papers would be read by Mr. A. F. KELLETT on "Harmony and Melody," and Mr. P. GROOM on "Weighing the World."

Botanical Society.—Since the opening address by Professor Hillhouse on the "Apposition *versus* the Intususception Theory," two papers have been read before this society. On March 22nd, at Almeley, Sir Harry's Road, where the society met by the kind invitation of Mr. W. Southall, Mr. PERCY GROOM read a paper on "Recent Researches into Colour Bodies, especially those of Schimper and Mayer." The next meeting was held at the house of Professor Hillhouse, and Mr. KELLETT read a paper on "Colour and Assimila-

tion," based on the researches of Engelmann, of Utrecht. At this meeting Miss Gertrude Southall was elected a member of the society. The next paper, entitled "The Progressive Colouration of Flowers," will be read on Saturday, May 17th, by Mr. Gibson.

Queen's College Medical Society.—The conversazione, held on February 7th, was a brilliant success. Addresses were delivered by Dr. J. SAWYER, "On some points in our Professional Progress and Prospects," and by Mr. T. H. BARTLEET, on "Mens Sana in Corpore Sano." A number of songs were given, and experiments and scientific appliances exhibited.

February 13th.—Mr. JORDAN LLOYD read a most interesting and able paper on "The Radical Cures of Hernia."

February 27th.—Mr. E. BARK read "Some Notes from an old Pharmacopœia."

Chemical Society.—We are sorry that the Report of the Chemical Society has not arrived in time for insertion.

OUR CONTEMPORARIES.

Laurel Leaves.—We are always glad to welcome this paper, especially when so important a subject as "Great Men" is discussed in its pages. Although we fully appreciate the lengthy definition of a great man, yet we feel that one of such a type would be better described as a "Great Machine." There seems to be too much rule of thumb about him.

Our Magazine—we do not mean the *Mason College Magazine*, but the interesting organ of the North London Collegiate School for Girls—contains an article in which the narrowness of woman is complained of. We should have hesitated to accept the indictment from a masculine pen!

The Reptonian.—We can scarcely believe our own eyes. Even so august a person as the editor of *Reptonian* is degenerating. Cheer up, editor! If your editorial chair is uneasy, see if the funds cannot supply you with a more comfortable one, or, at least, with a cushion to improve the one you already have.

The Wykehamist (March), though chiefly devoted to athletics, has come to the conclusion that "concentration is the road to fame." We would add that "division of labour is the tendency of the times."

The Marlburian contains an article on Parody, in which the

writer, despite "that thrice-accursed plague of modern thinkers who give it a modern date," humbly maintains "The Battle of the Frogs and Mice" to be extremely ancient. We are afraid to venture our opinion in case this gentlemen has been on the earth before, and knew the writer. The editor gives an epitome of the matter sent in. One piece seems to have been rejected because written on both sides of the paper. How cruel!

The Girton Review informs us in a letter from Somerville Hall, Oxford, that ladies are to be admitted to the Honours Examinations in Moderations, and in the Final Schools of Mathematics, Modern History, and Natural Science.

The Institute Magazine contains a reprint of the first general programme and prospectus of the Birmingham and Midland Institute.

PRIZE COMPETITION.

We have pleasure in announcing that the prize offered for translation of a passage from Heine's "*Reisebilder*" has been awarded to Miss Mathews, of Highfield Lodge, Harborne Road, writing under the pseudonym "*Quis est.*" Her rendering is as follows:—

"Think! cried the lizard, in a shrill, imperious tone of the most profound contempt. Think! Which of you can think?

My wise Sir, already for about 3,000 years I have been making researches concerning the intellectual functions of animals; I have made men, apes, and serpents the special objects of my study. I have bestowed as much diligence upon these strange creatures as Lyonnet upon his willow-grubs, and as the result of all my observations, experiments, and anatomical comparisons, I can positively assure you;—No human being thinks, but just a something does now and then occur to men, such occurrences, entirely spontaneous, they call thoughts, and the succession of these one after another they call thinking.

But upon my authority you may re-assert this fact: no human being thinks, no philosopher thinks, neither Schelling nor Hegel thinks; and as for their philosophy, it is mere air and water, like the clouds of heaven. Innumerable such clouds have I seen passing over me with massive stateliness, and the next morning-sun has dissolved them into the nothingness out of which they had arisen.

There is but one true philosophy, and that is graven in imperishable hieroglyphics upon my own tail."

The translation signed "Erin go bragh" approached the successful one very closely in general merit, and some of its phrases, as "high-bred" for "vornehm," and "for a matter of three thousand years" were decidedly preferable. The judges may also remark that "unverschuldete Einfälle" might have been more correctly rendered "fortuitous impressions" or "notions;" and that "proud and secure" conveys the idea of the original better than "with massive stateliness."

By the continued kindness of members of the teaching staff a prize of one guinea is offered for the most successful analysis and criticism of "The Mill on the Floss," "Adam Bede," or "Romola." Only one of these works is to be attempted by any competitor.

The judges will be Dr. Tilden, Professor Hillhouse, and Miss Naden. Any student of Mason or Queen's College, of less than four years' standing, is eligible as a competitor. Compositions must be sent in by October 6th. They must not exceed in length six pages of the Magazine, and must be written on one side of the paper only.

Every composition must be signed with a *nom de guerre*, which must also be written on an accompanying envelope containing the real name of the writer.

The judges reserve to themselves the right of publishing any or all of the compositions.

THE GROWTH OF THE MODERN DOCTRINE OF ENERGY.

Under the above title is published the masterly address delivered at the Inaugural Meeting of the Physical Society. In sketching the growth of the conception of "Force," from Newton to Faraday, Professor POYNTING distinguishes between its metaphysical and physical aspect, and refers to the celebrated theory of Boscovich, pointing out that his attempt to "abolish the duality of matter and force" fails to meet the needs of the physicist. "To describe any physical action we require at least two terms—the thing, and its rate of motion." With this we agree, so long as the separation is retained simply for convenience in description. We must, however, remember that the distinction between "the

thing" and "its rate of motion," has no more objective reality than the distinction between doer and deed, thinker and thought. A sketch is given of the development of the doctrine of "Energy," or that power of doing work which is common to all the physical forces, by means of which they may be quantitatively compared. Here, again, we must be careful not to misinterpret the statement that when a body is acted on by a force, and moves so as to acquire energy, "the energy must enter from the surrounding space." "The modern school," we read on a preceding page, "reject action at a distance, and believe that whenever one body acts on another there is some machinery in the intervening space, whether evident to our senses or not." Energy, then, must be the state of this machinery with reference to work about to be done, or in process of doing. That is, it must be not a *thing*, but a *condition*. The address concludes by indicating the direction given to physical investigation by the researches of Clerk Maxwell. "Incidentally we have seen how various physical energies have been related. The next great step will be the discovery of the relation between these energies and gravitation."

COLLEGE INTELLIGENCE.

On Saturday a Meeting of the Physical Society of London was held in the Chemistry Theatre. Dr. GUTHRIE presided; and among those present were Professor Chandler Roberts, Dr. A. D. van Riemsdyk, Dr. Carey Foster, Dr. Gladstone, Mr. Philip Magnus, Professor Sylvanus Thompson, Dr. Lant Carpenter, Dr. Gore, Dr. Tilden, Professor Poynting, and Professor Haycraft. Professor POYNTING exhibited an apparatus illustrating the Laws of Refraction as applied to Waves, Mr. C. J. WOODWARD a new Oxyhydrogen Lantern, and the PRESIDENT experiments showing the effect of Temperature on the miscibility of certain Organic Salts with Water, which was further illustrated by Dr. TILDEN.

Our readers will be pleased to learn that Mr. A. B. Badger has been elected to an open Natural Science Exhibition at New College, Oxford, of the annual value of £50.

Miss Osler.—It is with sincere regret and pain that we record the death of Miss Osler, whose sympathetic interest in those about her had won many friends at the College. Less than a year ago an account appeared in this Magazine of a summer afternoon made

delightful to many members of the Union by Miss Osler's kindness; and those who were then present at South Bank will henceforth feel their pleasant remembrances of that day mingled with much sadness.

RECOMPENSE.

The wine-flushed monarch slept; but in his ear
An angel breathed: "Repent, or choose the flame
Quenchless." In dread he woke, but not in shame,
Deep musing—"Sin I love, yet Hell I fear."
Wherefore he left his feasts, and minions dear,
And justly ruled, and died a saint in name:
But when his hasting spirit heavenward came,
A stern Voice cried—"Oh Soul! what dost thou here?"

"Love I forswore, and wine, and kept my vow
To live a just and joyless life, and now
I crave reward." The Voice came like a knell:
"Fool! dost thou hope to find again thy mirth,
And those foul joys thou didst renounce on earth?
Yea, enter in! My Heaven shall be thy Hell."

CONSTANCE C. W. NADEN.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: names will not necessarily be published, but are required as a guarantee of good faith on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Dear Madam,—The results of a political debate are truly, as a correspondent observes in your last issue, horrible.

Though he has not brought the fact before public notice, I feel convinced that it is well known that the speaker who stigmatized landlords as vultures was waylaid while going home that night by the Tories, and horribly mutilated.

It is a matter of public notoriety that the speaker who appealed to the "Radicals' conscience" (!) was absent from college on several succeeding days owing to various *engagements* with prominent Radicals.

In conclusion I, in common with your correspondent, regret that the last meeting of the Union, instead of being a "model of politeness and pleasantness," was characterized, as all must agree, by ribald scurrility, envy, hatred, and all malice.

I am, Madam,
Yours more sufferingly,
ARTHUR G. IRVINE.

Erratum.—Page 46, 7th line from bottom, for "reminders" read "remedies."

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1884.

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PRICE SIXPENCE.

Vol. II. No. 4.

THE Mason College Magazine, BIRMINGHAM.

CONDUCTED BY THE STUDENTS.

JUNE, 1884.

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CALENDAR.

June 20.—Friday—Union Meeting. Paper: "Agriculture," by Mr. Gardner.
,, 23.—Monday—Summer Term. Examinations begin.
,, 24.—Tuesday—Microscopical Society, Geological Section.
,, 28.—Saturday—Summer Term ends.

EIGHT WEEKS IN INDIA.

(Continued from page 56.)

* * * * * * *Native States.*—Between Agra and Gwalior is the great bed of the river Chambal, and the country for twenty miles each side of it consists of interminable barren ravines. Over this very difficult country a line has been made to our military station on the boundary, and near the commanding rock-fortress of Gwalior, Sindhia's capital. Any one wishing to penetrate further into Sindhia's district of Bundelkund, would, on leaving the railway terminus, go to the Dâk Bungla (travellers' house) of our station to refresh himself, and to order a dâk gharri for the evening. A dâk gharri is like a roughly-made, narrowed, London four-wheeled cab (or boneshaker). Boards and hard cushions are laid from seat to seat, and all the rugs and pillows you can muster on the top of these. You lie at full length, with feet, if necessary, under the driver's seat. Whenever there are dâk gharris to be had, of course the dâk, or post, has been "laid out," that is, something to make it progress will be found at stages along the road. The pony of a costermonger's cart is better than some of the animals which draw these gharris. The job must be contracted for by some Hindu who has lost the last tinge of the Buddhist feeling towards animals. A couple of these wretched ponies, when once, after some minutes of howlings and beatings and pushings behind, they can be got to start, go at a canter for six miles, and are then changed for another pair, unless a river

bed or some sandy tract should necessitate a bullock stage instead. The monotony of the shaking has generally just brought the traveller to a napping state when a stage is reached. It is rather well to be awaked at a good many stages. The scene is truly weird: sleepy natives, in their dusky calico festoons, silently advance out of the midnight depths of mango-groves or thorny thickets; some carry torches, others draw along the fated ponies. All across the heavens, low in front the Southern Scorpion blazes out magnificently, while our familiar constellations, above the soft foliage around, seem to have *changed* their stars for others brighter and bigger. That the Brahmans were such early and great astronomers appears less wonderful after seeing these night shows of splendour. Perhaps, while waiting here, with silent swinging trot a figure swiftly passes; it is the dâk, or postman; running is his profession, and doing it so well he attributes to the plan of eating nothing first, but chewing opium as he goes. Silently the poor ponies are roped in, and then the urging begins. You always do start somehow or other, and, sometimes, keep on to the next stage; but should there be ever so slight a rise in the ground, everything has to be gone through again. For this purpose a couple of extra men has to be taken along all the time, and, it is said, that sometimes the travellers themselves have to help to push. Our servant lying out on the top of the gharri seemed to sleep all the night. In this way we travelled sixty-five miles.

At Jhansi we were entertained by an Englishman, who laid out a dâk for us of his own horses for completing the eighty miles over very rocky sandy country, ending with no road at all. Then we pulled up at the brink of a great river, or rather rocky river bed. A weir was being made across it previous to drawing off a canal. This weir seemed an enormous undertaking, but it was said that three years would suffice, and when finished the canal is to wholly prevent famine and change the face of a province. This huge rain-fed river is to be tapped—a fresh experiment. At the time of our visit it required four or five English engineers. They lived partly in white-washed mud bunglàs, partly in tents, and supervised many hundreds of native men and women. These work twelve hours a day, with scarcely a break, and at night withdraw to encampments of most slight and tiny sheds, sometimes only a bit of matting hung over a pole. Evening meals were of course mostly prepared and taken in the open. Such a place gives a good opportunity for seeing native life. The women doing this regular

work could afford sufficient food and sufficient red cotton draperies and massive leaden jewelry to look quite stately as they filed along, poising baskets of stone on their heads, instead of puny and shivering in one dirty rag, like those we had seen on the way. Yet the pay per basket was only a cowrie or two stored up till they could be exchanged for a pie; of pies twelve go to the anna, and an anna is scarcely three halfpence. On a holiday they congregate by the hour round the pumping engine in a kind of adoration. For Hinduism in such a district is not enlightened. The Brahmans have violent disputes as to charge of one of the before-mentioned red-smeared "high places," because to them accrue all the heads of the animals sacrificed—yet this one could not bring in many! Cocoa-nut shells and bits of straw were strewn around; the shells only had been brought instead of full cocoa-nuts, and the bits of straw instead of so many beds—votive offerings differing widely between promise and fulfilment.

* * * Our journey across the desert to Jodhpur (the capital of another native state) had been arranged for us by the Resident, whom we were going to visit. This gave it a certain unavoidable pomp, beginning at the terminus of the branch line, where the head men of neighbouring villages, much arrayed, came to salaam, and then to shake hands, and then to escort us to a bungalow to rest during the heat. Gaudily-curtained bamboo gigs, drawn by magnificent creamy bullocks, plenty of camels, with riders or with pack-saddles, horsemen too, and the crowd of onlookers made a brilliant scene on the sandy open. There was only a *track* for this forty mile desert drive: that was why six horses were necessary for three people. Three running grooms, three horse guards, and two or three camel guards, were our escort till darkness came on. Then we reached a village, with its barricade of thorns, and outside it appeared the dim forms of our tents. Here was a dainty dinner provided in one tent, and separate tents for the night, with all that could be desired.

* * * The water was certainly sandy; but what luxury to have baths at all in mid-desert! Sometimes travellers hereabouts are driven to wash in a scanty supply of soda-water!

Until any one gets used to tents, the noise of the jackals is rather alarming; it is so human that it might well mean a second mutiny, or, at the least, a dreadful village row. You are told to fasten well down the canvass door-way curtain, in case of dogs, &c., but you feel sure that in spite of that they could get in if they

liked. My bath was, as I could hear, freely lapped up by them that night, but I was too lazy to get up about it.

Our servant, in his gaudy bullock cart, and our portmanteaus packed on camels, went steadily on through the night. (It is not uncommon to see a full chest of drawers fastened on one side of a camel, with camp washstand, chairs, table, &c., to balance it on the other. This is economical in portmanteaus, at any rate.) We were off early in the morning freshness, and saw the fort of Jodhpur before us the whole of the twenty-two miles of the sandy way. As to near things, it was pleasure enough for *any* eye to watch the running grooms and the camel guard (the camel seemingly a *Rajput* camel, no less than its perfectly handsome Rajput rider); also the beautiful Arab horse, sent for us to ride if we liked; also occasional passers-by, always on camels, and always armed.

I cannot tell, even superficially, of Jodhpur: with its extraordinary fort-palace towering over the thickly populated town, its tanks vast and dry, or narrow and deep, with a green pool at bottom, its narrow streets, picturesque houses and gateways, its religious fêtes and markets, its evening groups of women at the well, its outlying desert hills or ravines, with, perhaps, an oasis of rich greenery, and more palaces and more tombs. It had been the custom for each Raja to add to the fort-palace until the rock could hold no more. Since when the Rajas have built instead elaborate mausoleum-temples out in a certain ravine. * * *

Hydrophobia had been raging just before we were at Jodhpur. The wish of the Resident was to have the dogs killed; but Hinduism allowed no taking of life; and even to confine the animals would, it was feared, bring down divine retribution. So in vain did the Resident meet the Raja, in Durbar (Council) and out of Durbar. The monarch dared not authorise such a step. And, spite of their affection for the Resident, he was daily surrounded in the streets by crowds of protesting and imploring citizens. At length he succeeded in getting the dogs confined. * * * * * People with grievances gather every morning round the Resident under a big old tamarind tree in his garden, to be patiently listened to for hours at a time. One day a poor woman had besought him to speak to her husband, who had sold her for a slave. It was not the *being sold* that troubled her, or that seemed unjust, but that he had valued her *only* at thirty rupees! * * * An instance of the kind of influence which a

Resident may have in a native state, may be seen in the fact that this Jodhpur has been persuaded to economise his court display, and to have the better management of his revenue and its settlement looked to, so that a large saving is the result. And of this it is decided to make a tolerably sufficient Famine Fund; an untold blessing in such a country, where every rain trickle is noted and caught; where the tanks may be seen evaporating to foulness and then dryness, and the springs are wholly inadequate. * * *

One morning, out on some low sandy hills, we should have been quite alone, had it not been for two men, entirely preoccupied with chanting apparently to the ground, as they peered about scattering something from time to time. They were addressing and feeding the ants, who are regarded with awe and mystery in some parts of the country. How much good grain they gave and how much time too was devoted in this way I cannot say, but there seemed to be no stint of grain, time, or trouble. * * *

I must mention a day when we were fêted by the Raja. We were to have dined with him, or at the palace, but he was not well. So instead he sent us a nàtch, and some dishes from his own table, with one of his servants, and, after that, his poet laureate, called an improvisatore. For the nàtch the tennis ground was carpeted and torches prepared. About fifty women and girls with musicians assembled for it, with a frame of native spectators, lit up by the torches, and set off by the soft foliage around. The music and singing had some of the strange intervals and the monotony of bagpipes. The dance had an actual fascination; quiet and graceful in the extreme, every movement of head or limbs or body combined to produce an exquisitely harmonious effect. The whole number joined in one circle, or in smaller circles, and the effect was much enhanced by the perfect taste in colour and arrangement in dresses. It was not easy to come away, especially as the dance continued long after we went indoors from the balmy air. There the poet (with other natives of distinction) sat on a sofa and seemed proud to perform. He gave his audience the choice of battle scenes, troops of elephants and horses, marriages or royal fêtes, and, in what followed, these subjects were not only described in the words, but tramplings, crashings, processions, &c., &c., by the intonations and metre also.

Each day we had the choice of being carried, or riding

elephants or camels or horses, or walking, or sometimes of driving on our expeditions across the wild country, where porcupines rove at large, and pigs are wild enough to attack you. Any one may soon enjoy jogging along, perched on the pinnacle of a grumbling camel, who gets over the ground so softly and fast. I liked it very much. Elephants, however antediluvian in their hugeness and queerness and docility, yet seem quite indispensable to this nineteenth century, and can be seen, as some of our party saw them, at works as different as stacking timber and minding babies. For people to mount, the elephant is first asked to kneel; one hind foot makes the No. 1 step, the bend of his tail makes No. 2, and from that the rope of the pad is grasped, the riders haul themselves on top, there is a cry of "hold fast," and then the huge creature gently rises. A simple big pad, on which three can sprawl, is the best saddle, and embroidered satin trappings, the work of lifetimes, though they look regal and add much to the picturesqueness of some scenes, yet do not belong to trotting through jungle, or swimming rivers, or scrambling up the steep banks, which we found far the best fun. (One time up at Hurdwar, where the Ganges emerges from the hills, we went for a few miles through jungly grass up the river side, or in and out of its branches, marking now and then the foot-prints of a tiger. Towards evening we halted on an island, amongst wild monkeys and peacocks, and then found awaiting us bullock-skins filled with air. Leaving the elephants, we embarked on the river on these mussocks, and came gliding down stream back to the tents—gliding with yards of clear green river right below, and on into the pink sunset water and the glittering moonlight.) When we went with these cavalcades to kings' mausoleums, or to some outlying tank and gardens, there were awaiting our arrival some well got up natives, who received us with salaams. They offered us little bouquets of orange blossoms, and baskets of cut pomegranates, and trays of sweetmeats, nuts, and scents, and they garlanded the whole party with necklaces of sweet white flowers. But winding home by torchlight, in single file, was perhaps the best part of all. * * *

The chief hard work of the Jodhpur Resident is reducing dacoits, or professional robber tribes, to law and order. One inveterate old chief had shortly before for the third or fourth time been brought in for justice, and, at last, a punishment had been devised, which proved sufficiently awful and subduing, viz.:—The requirement that

his son should be sent to the Government College at Ajmir. * *

At Jodhpur too, we heard about some of the native plays. The people are very shy of admitting the English, but it is *the* place to get to know the real native mind: a difficult thing to do. The plot of one play was connected with an Englishman's encampment when on the march. The village chief objects to his settling on a certain spot: then the imperiousness of the Sahib is cleverly taken off, and, though he has his way, he is well laughed at behind his back. As Mem-Sahib, in another play, a vulgar and showy native copy of an Englishwoman assumes to perfection the airs of superiority which she might be supposed likely to give herself towards the natives around. * * *

In visiting the towering fort-palace of Jodhpur (where, bye-the-bye, were frescoes of much interest), we were conducted by two brothers of the Raja, dressed in silks—one a noted steeple-chaser, the other a student at the Government College at Ajmere, and very fond of tennis. They talked a little English to the gentlemen, but after salaaming they took no notice of the ladies. They took care to keep shut all the doors of the zenana region.

We had much hoped to be allowed to visit the Jodhpur ladies, but it seemed entirely out of the question. I was told, however, by a doctor who was attending the Raja, that by hook or by crook they managed to know exactly what each of us had on, and they knew where we went each day, and had spread the rumour from the fact of my sketching their palace from afar that I was some sort of a spy.

Tanks.—I have not said much about tanks. Throughout India they are a constant source of delight. Almost every village has one or more, and towns boast of their tanks in the same way as we of our town halls. I need not say that it is a part of the Hindu's code of duty to bathe each day before or while he prays, or before he takes his chief meal. In the village tanks, I fancy, the women have ghâts set apart for them, and the castes do not mix more than can be helped. But on the holy Ganges' shore, the special personality of people appears merged in the solemn rite, and the mêlée is consequently indescribable. Some seem simply washing themselves—perhaps scouring the head with sand; some offering their vessels of holy river water to the sun, and bending in silent adoration; some are mumbling their prayers, or reiterating the name of their own special god, or performing strange religious antics; some are scattering on the stream their offerings of holy orange marigold

flowers; most change their wet garments for dry ones before they leave the ghâts, and then go to the priest under his umbrella, to get a blessing and the paint marks to which they are entitled. Much more goes on that I have not time to mention, and some of it may be seen at every village tank, with its deep shade of mango trees and the dark clear water, and its small carved red stone shrines at one end, and perhaps an island-shrine in the centre, and the rest stretching away open to the fields and the sky. The tanks are often covered with pink lotus-lilies, and indeed seem to be a haunt of beauty in general, even before the bathers come with their bronze-coloured supple forms, and the whiteness or gaiety of their clothes. All sorts of animals and birds seem to congregate to add to the beauty, especially in out-of-the-way tanks. The monkey tanks are *too* queer, where the keeper feeds his crowd of young demi-gods. In a town, the monkeys, on account of their great numbers, and their thieving from the open bazaars, have sometimes actually to be lured into a cage and packed off by the hundred to a forest. * * * *

* * * * It is a frequent question for a traveller to ask of the Anglo-Indian, "What is the feeling of this part of the country towards us?" If the questioner is at Lucknow, he is told *bad*; if in the Punjab, or in some part remote from the actual sites of the mutiny, he *may* hear that they most truly LOVE us; but, as often as not, he hears they do *not love* us, why should they? the feeling is rather one of complete indifference: if the Russians were to take our place to-morrow, the Indians, as a whole, would not trouble themselves at the change.

STUDENT LIFE IN PARIS.

Englishmen are apt to represent to themselves the Paris student as a being with long unkempt locks drooping over his shoulders, under slouched, brigand-like hat, with a general unwashed Bohemian air, and into whose extra-academical pursuits it were better not to enquire. He is either a transcendent genius, who lives on sixpence a day, and accomplishes intellectual feats, which make his professors tremble in their chairs; or, on the other hand he is an idler, a *vaurien*, only known in the schools for the number of times he has been "plucked" (*collé* is the expressive French word) in his examinations.

If this impression, or a trace of it, still lingers in the British mind, let me dispel it by assuring the reader that this species is now extinct, and has been for some thirty years. The student now cuts his hair, wears clean linen and good clothes, and has even been seen wearing the "British tile" in the sacred precincts of the Quartier Latin. Moreover, if he is not omnivorous of learning, he is, at least, a steady worker, and a respectable member of society.

That part of Paris inhabited by students, the famous Quartier Latin, claims here a few words of description. Its main artery, running north and south, is the Boulevard St. Michel, familiarly known as the *Boulevard Miche*; a handsome street (a product of the energy of M. Haussmann), occupying the place of the old Rue de La Harpe. Here are the numerous cafés, frequented almost exclusively by students and teachers, where they can take their ease out of sight of all the schools. For the schools are all in by-streets, and the only glimpse of them to be had from the Boulevard is the Church of the Sorbonne; a gloomy edifice, which is buried in a small street close by to which it gives its name. This, with the *Ecole de Médecine*, and the *Ecole de Droit*, are the only schools in the Quartier Latin: the *Ecole des Beaux Arts* is by the river side, and the Conservatoire of music and the drama, the nursery of the Comédie Française, is far away on the other side of the river.

The Sorbonne took its name from Robert de Sorbon, the confessor of Louis XI, the founder of the once famous theological school which was the nucleus of the University. It now comprises the faculties of Arts and Science as well. The Law School is a separate building, in a more imposing situation, the *Place du Panthéon*, where it forms a twin-building with the Town Hall of the fifth *arrondissement*. The School of Medicine is also separate in a street of its own name.

If the visitor to the Place du Panthéon should be tempted to enter the Law School, he will see a large amphitheatre, full of students, intent on scribbling notes in books on their knees, for they have no desks, but only forms, and are left to make their own arrangements for taking notes. On the entrance of the lecturer, preceded by his *appariteur* or beadle, the class stamps and claps until he is seated; with a popular professor the uproar is immense. The same process is repeated, in a less degree, at the end of the lecture, but during its delivery perfect order and silence are maintained; a phenomenon, I regret to say, not always characteristic of

large assemblies of Frenchmen. The lectures are quite free to the public. The professors are dressed in black gowns, with a kind of scarlet shoulder-knot or stole, and wear red caps, with gold lace bands, something the shape of an inverted tall hat. On great occasions, such as the examination of the theses for the doctors' degree, they wear scarlet gowns, and look very imposing. This only applies to the law professors. Those in arts, science, and medicine, wear no distinctive dress.

With the exception of the theses just mentioned, the examinations are entirely *vivâ voce*. The candidates are required to appear in gown and bands, which are provided on the day by an *appariteur*. The gown is different from an English University gown, in as much as it buttons all the way down the front. Four candidates at a time sit at the table in the alphabetical order of their names, and stand up to give their answers. It is traditionally thought that the first candidate has the easiest questions; but the present writer's experience induces him to think that this is not invariably the case. When the examiners are satisfied, the room is cleared, and they vote in private by coloured balls, a *boule blanche* corresponding to the highest and *boule noire* to the lowest order of merit. The intermediate stages are *rouge-blanche*, *rouge*, and *rouge-noire*. The verdict being pronounced in this way, the clerk comes to the door, and reads out the result without further delay, to the candidates waiting outside.

The weak point of the French University system is the absence of means of communication between the professors and students outside lecture hours, and the lack of *esprit de corps* among the students themselves. A slight remedy for this has been found of late years (especially in the Law School) in numerous debating clubs, consisting, some of students only, others of students and professors. Do not let the Masonian imagine that there is any similarity between these institutions and his own Union, except in the name. Not nearly as much freedom of discussion would be allowed in France, even if the students were inclined to claim it. As it is, they confine themselves entirely to technical questions. One of these societies, of which the present writer was sometime a member, held its sittings in one of the Courts of the Palais de Justice. There was a judge and counsel on either side, each wearing a gown; and when both counsels had spoken, a debate took place. The *procureur* (a similar officer to the public prosecutor in criminal cases) was then heard and a

vote taken. Nothing, however, has yet been devised which will put the University of France on a level, as regards opportunities of social intercourse, with Universities where the college system obtains.

All Parisians are great theatre-goers; and no one loves the theatre more than the student. It is his special privilege to offer early criticism of every piece that comes out, and his advice respecting new plays is not unfrequently asked. The cheapness of French theatres enables him to indulge his taste freely. Until lately the Théâtre de l'Odéon, in the heart of the Quartier Latin (second only to the Comédie Française) was almost the peculiar property of the students, and their verdict determined the success or failure of the play. But the new generation of short hair and good hats frequent also the theatres on the more fashionable *rive droite* of the Seine; in particular the famous Comedie Française, where they make a point of seeing every new piece. The repertory and the names and peculiarities of all the actors and actresses are things of which a student must not be ignorant. They are the alphabet of his recreation, as much as a knowledge of cricket to an Englishman.

It must be kept in mind, and it is a matter of great regret, that French students have absolutely no organised form of physical exercise in way of games. It is true that the richer of them ride, and most of them fence; but a "game" in the English sense is to them an unknown quantity. There are, on the Seine, several boating clubs, *cercles nautiques*, but they consist of older men with money and leisure.

There are representatives of all nationalities in the Paris schools. Roumanians and Greeks are very common in the Law School, Americans in the Art School, and scattered about with tolerable impartiality are English, Germans, Italian, Spaniards, and a very few Chinese and Japanese. The latter wear European clothes, but the Chinese usually cling to their oriental garb.

THE UNION.

May 23rd.—Mr. G. St. Johnston in the chair. Sixty-eight present, including eight visitors.

A letter was read from Professor Bodington, acknowledging his election as an honorary member of the Union.

Miss Hadley then gave her paper on "An Ancient and a

Modern Philosopher."—Evolution is a new electric light thrown on that thread of truth which has been held unbroken by the great minds of earth, from the Chinese philosopher LAUTZE, living 3,000 or 5,000 years B.C., to HERBERT SPENCER. Two points are to be noted: first, that great thinkers are far seeing: true to themselves, they are false to no age; and second, that both the ancient and the modern philosopher teach that it is by the accumulation of individual effort in the right direction that the world progresses towards a better state. Confucius, a younger contemporary of Lautze, was a man who kept in the beaten track, learned, practical, worldly-wise, the editor and compiler of some very good and wise things, culled from the ancient literature of China. He went to see Lautze once, and the account of the interview is said to be very characteristic of the two men. Among other things Lautze told Confucius that those whom he talked about were dead, and their bones mouldered—that a superior man, when he gets an opportunity, should mount aloft and soar for himself. When Confucius returned, he said to his disciples, "I know how birds can fly, how fishes can swim, and how beasts can run. And the runner may be snared, the swimmer may be hooked, and the flyer may be shot with the arrow. But there is the dragon; I cannot tell how he mounts on the wind, and through the clouds, and rises to heaven." It is quite evident they did not get on very well. The memory of Lautze is kept up by a small sect called Tauoists, of whom he is the acknowledged head, but who have added nothing valuable to his little book. "Speculation there has been among them, and wild dreaming—superstition and blasphemy too in abundance, but scarcely aught that is worth the knowing," says the translator. They represent the materialism of China at the present time. I mean materialism in its bad sense, that form which would cherish our lower natures, which believes in a want of power of growth, and is the exact opposite in my mind, and most deadly opponent of evolution. So that the Tauoists of the present day cannot be regarded as in any way representative of Lautze, and sometimes I fancy that he can only be read, to be understood, by the lights of our own time. Confucius embodied in his Analects (still the law and religion of the Chinese), the manners, customs, and beliefs of his age, while Lautze saw that a good government could not result from bad people, and that nothing but the improvement of each individual could make a good nation. He says, "Make the upright rule the nation." "Would that I

were possessed of sufficient knowledge to walk in the great way" (*Tau*). "When one who wishes to take the world in hand, tries to *make* it, I perceive that he will never have done." (Compare the chapter in *Social Statics* on the "Limits of State Duties.") The word *Tau* may mean "way," "reason," or "simplicity," and seems to correspond with the "inherent sufficingness of things" of Mr. Spencer. Again, Lautze said, "When the world has many prohibitory enactments the people become more and more poor. When the people have many warlike weapons, the government get more and more into trouble." * * * * "Make him who takes no measures, emperor. Do nothing, and the people are spontaneously transformed. Love quietness, and the people are spontaneously rectified. Take no measures, and the people become spontaneously rich. Have no lust, and the people become spontaneously pure-minded." Compare the concluding words of the *Study of Sociology*. "Thus admitting for the *fanatic*, some *wild anticipation* is needful as a stimulus, and recognising the usefulness of his delusion, as adapted to his particular nature and particular function, the man of higher type must be content with greatly moderated expectations, while he perseveres with undiminished efforts. He has to see how comparatively little can be done, and yet to find it worth while to do that little: so uniting philanthropic energy with philosophic calm." We have at the present day no better method of observation than that practised by Lautze. "Therefore by observing myself, I know others; by observing my family, other families; by observing one kingdom, other kingdoms; by observing the existing world, other worlds."

A discussion followed, in which Miss NADEN, Mr. LOVE, and Miss D. ALBRIGHT took part.

Mr. PENN then read his paper on Addison.

Joseph Addison was born in the little village parsonage of Milston, in Wiltshire, May 1st, 1672. There he may have learnt to love silence and seclusion. When old enough he was sent to the Charterhouse School, where he formed a friendship with Richard Steele, as gay, careless, and impetuous, as Addison was shy, modest, and scrupulously careful. In 1687, Addison entered Queen's College, Oxford, where he distinguished himself by the accuracy and brilliancy of his Latin verse, and was elected to a scholarship at Magdalen College. Here he spent ten years, studying and writing. This was the age of patrons; and a year

after taking his degree, Addison found his Mæcenas in Sir James Somers, and, later, gained another influential friend in Charles Montague, Chancellor of the Exchequer. He had been intended for the church, but was induced by his friends to give up taking orders, and accept a pension of £300 while travelling for diplomatic purposes. After spending three and a half years in France and Italy he returned to England. William was now dead, and the Whigs out of office; but in 1709 we find Addison again serving under a Whig Ministry as Chief Secretary of State for Ireland. At this time the *Tatler* came out, under the editorship of Richard Steele, and Addison recognised it as the work of his old friend by a quotation from Virgil, over which they had often talked at the Charterhouse. He hurried to England, and began to write articles on men and manners for the *Tatler*. In 1710 the paper suddenly stopped; in the same year Addison lost all his appointments by a change of ministry, and started the *Spectator*, which appeared every day till December 6th, 1712, and was received with great enthusiasm. The papers were written by Addison, Steele, and others, and are fresh, concise, and sparkling, showing no traces of laboured composition. (Mr. Penn here read some interesting extracts.) In 1713 the tragedy of *Cato* took the town by storm. This success of Addison did not pass unnoticed by the inveterate malignity of John Dennis, who published a criticism on the play trying in vain to stem the tide of popular applause. From this ill-natured criticism, Pope took upon himself to vindicate Addison, and he therefore published a narrative of the madness of John Dennis, in which he more vexed the critic than he defended the poet; but Addison, perceiving the selfishness of Pope's friendship, informed Dennis, through Steele, that he was sorry for the insult, and that Pope should take on himself the consequences of his officiousness. Three years later he married the Dowager Countess of Warwick, whom he had been soliciting for some time with that perseverance which Sir Roger de Coverley shows in his courtship of the disdainful widow. The lady was not less haughty after marriage, and treated her husband as little more than a tutor. In 1717 he was made Secretary of State, but was soon obliged to resign his position in consequence of ill-health, and two years later died from an attack of asthma. Mr. Penn concluded with an analysis of the character and style of Addison, illustrated by extracts from his writings.

A discussion followed, in which Miss PERRY, Miss ALBRIGHT, and Miss NADEN took part.

A vote of thanks to Miss Hadley and Mr. Penn was proposed by Mr. PICARD, and seconded by Miss BISHOP.

June 6th.—Mr. SMITHSON in the chair. Eighty-four present, including twenty visitors.

The debate on the proposition that "Where ignorance is bliss, 'tis folly to be wise," was opened by Mr. PRITCHETT, who cited instances of the evils wrought by curiosity. We believe that Mr. Pritchett has not before taken part in a Union debate, and we venture to express the hope that in future he may be more successful in catching the tone of courtesy and good taste which has usually characterised our meetings.

Miss COHEN considered that sorrow is a moral force, and should be utilised, not shunned. The opposite idea is at variance with the best teachings of the nineteenth century.

Miss ASHFORD thought that if bliss be defined as the condition of a well-to-do kitten, and wisdom as worldly prudence, the proposition is unassailable. She hoped to be supported by three classes—those who were going in for examinations, those who desired to live comfortable and easy lives, and those who, like Faust, had mastered all the 'ologies, and found them barren.

Miss PERRY replied that we must consider, not merely our own advantage, but that of mankind as a whole. By the sorrow which wisdom brings, we may learn sympathy with others. The disastrous results of blissful ignorance are shown in Kingsley's story of the "Do-as-you-likes." The speaker hoped to be supported by *one* class—the wise.

The debate was continued by Mr. BARWISE, Mr. ST. JOHNSTON, Miss NADEN (who pointed out that the bliss of ignorance is insecure, and that while the *immediate* effect of wisdom may be sorrow, its *ultimate* effect is usually increased happiness), Mr. EHRHARDT (who related an amusing if not strictly relevant anecdote), Miss B. CLARKE (who showed that Gray's lines related merely to children), and Mr. LOWE (who agreed with Miss Ashford in her definition of bliss). Mr. PRITCHETT'S reply was nearly inaudible, but he was understood to comment upon the voice and manner of previous speakers.

The voting was as follows: affirmative, 24; negative, 23.

EVOLUTIONAL EROTICS.

I had found out a gift for my fair,
  I had found where the Cave-men were laid;
Skull, femur, and pelvis were there,
  And spears, that of silex they made;

But he ne'er could be true, she averred,
  Who would dig up an ancestor's grave,
And I loved her the more when I heard
  Such filial regard for the Cave.

My shelves, they are furnished with stones,
  All sorted and labelled with care,
And a splendid collection of bones,
  Each one of them ancient and rare;

One would think she might like to retire
  To my study—she calls it a hole!
Not a fossil I heard her admire
  But I begged it, or borrowed, or stole.

But there comes an idea-less lad,
  With a strut, and a stare, and a smirk;
And I watch, scientific though sad,
  The law of Selection at work.

Of Science he hasn't a trace,
  He seeks not the How and the Why,
But he sings with an amateur's grace,
  And he dances much better than I.

And we know the more dandified males
  By dance and by song win their wives;
'Tis a law that with Aves prevails,
  And even in Homo survives.

Shall I rage when they whirl in the valse?
  Shall I sneer when they carol and coo?
Ah, no! for since Chloe is false,
  I'm certain that Darwin is true!

COLLEGE SOCIETIES.

Chemical Society.—March 19th.—President in the chair; 17 members present. The minutes of the last meeting having been read, it was proposed by the PRESIDENT, and seconded by Mr. CULLIS, that Professor Poynting be elected an honorary member of the Mason College Chemical Society, and on being put to the meeting the proposal was carried unanimously.

The President then called upon Mr. LLOYD to read his paper on "Dissociation," after which he opened the discussion with some interesting remarks on the subject of the paper generally. The debate was sustained by Messrs. LOVE, NICOL, and others. The exhibition of various experiments of Dissociation concluded the meeting.

May 21st.—President in the chair. The minutes of the previous meeting were read, confirmed, and signed. There were 22 members present.

The President called upon Mr. COOPER to read his paper on "Ozone," in which he set forth, at some length, the history and chemical properties of this interesting allotrope of oxygen. A debate followed, which was opened by the PRESIDENT and continued by Messrs. LOVE, ADAMS, and GARDINER. The performance of experiments, illustrating the various statements made in the paper, concluded the meeting.

Physical Society.—Meeting held on May 28th, in Physics Lecture Theatre, Professor Poynting (President) in the chair.

Mr. LOVE (Vice-President) read a very able paper on "Molecular Bombardment," including an account of the radiometer, "radiant matter," and "dust figures." He also showed some beautiful experiments on electric discharge in rarefied gases. The President at the close of the paper agreed in the opinion that there is no fourth state of matter.

Botanical Society.—On Saturday, May 17th, this Society met at the house of Professor Hillhouse, and Mr. GIBSON read a very interesting paper on "The Progressive Colouration of Flowers," after Grant Allen. The paper was followed by a discussion on the Wolff-Goethe Theory of petal-derivation *versus* the Grant-Allen Theory.

On Saturday, June 7th, the last meeting of this Society was held at the house of Mr. A. Charles. A paper was read by Miss CHARLES on the "Embryo Sac," being a condensation of

M. Guignard's paper on the subject. Professor HILLHOUSE cleared up one or two difficulties which were suggested. Mr. CELLIS hoped the Society would continue to prosper in the next and succeeding sessions, and said he looked forward to the time when its members would read before the the Society accounts of their own researches.

OUR CONTEMPORARIES.

The Eagle contains an account of the fearful calamity which happened some time ago, in the colliding of the ships *Simla* and *City of Lucknow*, by one who was on board the former. It also contains an account of that great institution of schools, known as "Speech Day," which from the report appears to have been an extremely successful one. With it is forwarded a picture of Bedford Modern School.

The Wykehamist consists of two parts, an editorial and athletic news. We were sorry to notice the absence of even one original article.

The Reptonian contains a very well written poem in memory of the Duke of Albany, by *Lachesis*, a poem which, in our humble opinion, reflects great credit on the writer. We must thank *Reptonian* for its modest flattery. The editor had read the *Mason College Magazine* all through, and could find nothing from which to dissent until he came to our much prized skeleton on the last page of the cover. We thoroughly agree with you, editor. Other readers have tried the same experiment, and their results appear to coincide. The members of the Debating Society seem to possess some peculiar notions with reference to British politics. One enterprising individual remarks that abroad, England is disregarded by Bismarck, and her territories invaded by Russia. We fear this speaker has made some slight mistake in the order of his words.

The Haileyburian contains a most eloquent article, entitled "A Ramble in Warwickshire." The writer seems to understand how to convey picturesqueness to paper.

In *Laurel Leaves* we notice an article entitled *Oscar*, who seems to have been the pet dog of some young lady, and who delighted in getting that young lady in all sorts of scrapes. We should advise her to sell that dog. He's dangerous, especially when he has had no breakfast.

We were highly pleased with the article on "Symbolism in Art," by Mis Gittins.

The Shenstonian.—This is a new publication, and one which we hope will improve as it grows older. At present it is chiefly devoted to athletics.

COLLEGE INTELLIGENCE.

Scholarships.—Our readers will be pleased to know that the following Scholarships, tenable during the session 1884-85, are offered for competition :

(a) Two Entrance Scholarships, of £30 each, tenable for one year ;

(b) One Scholarship, of £30, for students of one year's standing, tenable during the second year ;

(c) Two Scholarships, of £30 each, for students of two years' standing, tenable during the third year ;

(d) Two Scholarships, of £20 each, connected with the examinations of the University of London, tenable during the session succeeding the date of the award.

(e) And two Technical Scholarships, of £30 each, tenable for one year.

The examinations for the Entrance Scholarships *(a)* will take place as follows :

Preliminary Examination.—Friday, 26th September.

Scholarship Examination.—Monday and Tuesday, 29th and 30th September.

The Scholarships marked *(b)* and *(c)* will be awarded upon the results of the College Examinations at the end of the present session (1883-84).

The Scholarships marked *(d)* and *(e)* will be awarded upon the results of the ensuing Matriculation Examination, and the Intermediate Examinations in Arts and Science of the University of London (June and July, 1884).

The Technical Scholorships marked *(f)* will be awarded as follows :

In the Chemical Department—upon the result of an examination in Theoretical and Practical Chemistry, to be held at the commencement of next session.

In the Engineering Department—upon the result of the College Examinations in the Technical Engineering Classes,

provided the student has taken the Junior Engineering Diploma.

Professor Robert S. Heath, M.A. (Cantab.), D.Sc. (Lond.), Fellow of Trinity College, Cambridge, bracketed 2nd Smith's Prizeman, 2nd Wrangler, 1881, has been elected Professor of Mathematics, in succession to Professor Hill, and will commence his lectures at the opening of next session.

Professor Hillhouse has been elected on the Committee of the Birmingham and Edgbaston Horticultural Society, by the proprietors of the Botanical Gardens at Edgbaston.

Mr. J. E. H. Blake, of Trinity College, Cambridge, one of the first students of this College, is again working for a short time in the Botanical Laboratory here.

Associateship.—It has been decided that the title of "Associate of Mason College" may, on the recommendation of the Academic Board, confirmed by the Council, be conferred upon all who satisfy both the following conditions:

1st.—They shall have been systematic students of the College during three sessions, having attended during each of the first two sessions three courses in separate sections of the College, and during the third session some course approved by the Academic Board. (No course to count unless consisting of at least two lectures weekly.)

2nd.—They shall have obtained one of the following qualifications:

(a) A University degree, taken with such distinctions as shall be deemed satisfactory by the Academic Board.

(b) They shall have gained three first classes in separate sections in the College Examinations at the end of their first and second years, and at the end of the third year they shall have obtained a report that they have pursued a satisfactory course of study during that year from the professors whose classes they have attended.

(c) The Senior Engineering Diploma.

The Associateship may be conferred on students who have studied only two years at the College during the first five years of the existence of the College, provided they have attended three courses during each of those years, and possess one of the qualifications above. (No course to count unless consisting of at least two lectures weekly.)

The Associateship may be conferred for original research or

distinguished merit upon past students of the College, who have not fulfilled the above conditions. Under this clause the Associateship may also be conferred on past Demonstrators and other members of the staff of the College.

For the present Associates will enjoy the following privileges:

1.—The use of the College Library.

2.—Free admission to lectures, and admission to the laboratories upon payment of a fee to cover expenses.

CORRESPONDENCE.

NOTE.—*All contributions (which should reach the Editor before the 1st of the Month) must be fully signed: names will not necessarily be published, but are required as a guarantee of good faith on the part of the writers.*

To the Editor of the *Mason College Magazine.*

Mason College,
June, 1884.

Dear Madam,—May I be allowed to propose that there should be a column in our Magazine devoted to *Notes and Queries?*

Probably many of us, from time to time, meet with somewhat unusual natural phenomena, worth recording briefly as "notes," but scarcely deserving of the importance attaching to an article or letter.

To give a concrete example of the "queries" (in fact the one which has prompted this letter)—What is the *real* cause of the destruction of the fruit and young plants in early spring? The usual answer is "frost;" but I believe it has been shown that frost alone is not responsible for the injury, and that it is only when we have frost, followed by bright sunshine, that the mischief is done. Firstly, I would ask, "Is this so?" and secondly, if so, "What is the physical and botanical explanation of the fact?"

Yours truly,
MARY D. STURGE.

[For an explanation see Prantl and Vines, p. 94. *Ed.*]

To the Editor of the *Mason College Magazine.*

Madam,—Accepting the creed of no other man, I am now constructing one for myself; one of its sentences is—"I believe in the infallibility and omniscience of Editors." Will you condescend to share a fragment of your omniscience with me?

My life is a problem to me, it consists almost exclusively of incidents which, from sheer "cussedness," turn out wrong. For instance, I have frequently been certain of obtaining one or more prizes, but the fates have willed otherwise. One year my perverse school-fellows, merely in order to deprive me of my rights, took the scarlet fever. As they had broken down we had to break up. Another year, just at examination-time, I caught the croup. This evil fate has followed me to college. Two years ago I expected a prize, but the professor went and got ill, so I had not attended the requisite number of lectures. This planning to defeat me has increased in extent and malignity. I absolutely dare not give the strategy which was adopted in the recent German competition! But the climax is reached in the last incident to which I shall allude. In these coming examinations I had expected six prizes (at least), but some burglars came to my abode by night, and so completely upset me that I am totally unable to compete. Were those burglars far-seeing, but mean, Mason's College students who had planned to defeat me thus? I shall peruse the lists to see who obtain these prizes, and shall demand satisfaction!

Can you explain this vile trick of fortune?

If you will solve these difficulties, I shall remain, henceforth your everlasting servant (*who credits not his own name*).

Possunt, quia posse videntur.

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Vol. II. No. 5.

THE

Mason College Magazine,

BIRMINGHAM.

CONDUCTED BY THE STUDENTS.

NOVEMBER, 1884.

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PUBLISHED BY
CORNISH BROTHERS, 37, NEW STREET, BIRMINGHAM.

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CALENDAR.

Nov. 1.—Saturday—B.Sc. Examination. Botanical Society—Paper by Miss Charles.
,, 3.—Monday—M.B. Examination.
,, 5.—Wednesday—Meeting of House, Education, and Discipline Committee.
,, 6.—Thursday—Physical Society—Mr. Brown on "The Planets," and Mr. Kellett on "Harmony and Melody."
,, 7.—Friday—Union Meeting—Papers, "Chartism," Miss Smithson; "The Origin and Development of the Nervous System," Miss Paul.
,, 12.—Wednesday—Meeting of Council.
,, 14.—Friday—Union Meeting—Impromptu Debate.
,, 15.—Saturday—Botanical Society.
,, 19.—Wednesday—Chemical Society.
,, 21.—Friday—Union Meeting—Paper, "The Evolution of the Sense of Beauty," Miss Naden.
,, 27.—Thursday—Meeting of the Academic Board.
,, 28.—Friday—Union Meeting—Readings, &c.
,, 29.—Saturday—Botanical Society—Paper by Miss Southall.

EDITORIAL.

A retrospect of the past session, or of any past session, would be very dull reading. For the brightness and interest and humour of College life belong not to the events themselves, but to the manner in which they happen. Even a Union debate is apt to seem flat, stale, and unprofitable, when compressed into reportable dimensions. All the goodness is boiled out of it. The exact phraseology of the different speakers is necessarily lost; and as to the tones of voice and expressions of face which helped to enforce their arguments, these cannot possibly be reproduced, until those golden days when the art of photography shall be so greatly improved and simplified that every page will as a matter of course be accompanied by its appropriate illustration, and when the

phonograph shall preserve so perfect a register of inflexions and cadences, that we can fight our verbal battles o'er again at our leisure, and hear ourselves as others heard us. In those days, we shall be able to print off sounds just as we now print off the visual symbols which represent them, and voice-portraits will be quite as common as face-portraits. For sixpence, or less, we shall buy the concentrated eloquence of our favourite members of Parliament or pulpit orators. There is some danger, however, that the arts of reading and writing may thus become obsolete, and that a magazine like ours may be decipherable only by the antiquarian few.

But at present, retrospects and reports are not distinguished by any thrilling fascination. Rather may they be classed with "Court Calendars, Directories, Pocket-books, Draughtboards," in Lamb's catalogue of "books which are no books." Therefore, while gratefully acknowledging the gifts of the last session; its Common Room, its Chemical, Physical, and Botanical Societies, its Scholarships offered and awarded, its new Order of Merit in the shape of the Mason College Associateship; we go our way, looking to the future rather than dwelling on the past. Yet we cannot help lingering a moment to point out that all these boons ought to nurture a deeper feeling of College patriotism, and to unite past and present students in common interests and common memories. The last-mentioned institution, especially, will often serve as an outward symbol of those pleasant remembrances which link the College with old friends, whether students or members of the staff. We must say a word on our own account to those who will be missed this session from classes and meetings. Though they are absent in the flesh, let them be present in the spirit, and let them manifest their presence, not by rappings, and table-turnings, and blue lights, but by the far more rational and welcome expedient of a letter to the Magazine. For the Magazine will not have fulfilled its mission unless it acts as a bond of union and a medium of communication between all who care to be reminded of their connection with the College. We shall be delighted to hear from those who have helped us in former days, and also from others who have hitherto been silent well-wishers.

The last "we" was large and generic, including selves and successors; and rightly so, because it stands sponsor for no prediction, but for the expression of a general and permanent feeling. If history tends to dulness, prophecy (other than that

"retrospective prophecy" which results from "the method of Zadig") is far too dangerous to be risked by any Editor who wishes to maintain a reputation for sober sense. And promises—not to mention their proverbial resemblance to pie-crust—are in our special case peculiarly inadmissible. For, according to present regulations, the first number published in the session contains the last dying speech of a retiring Editor; and even when he or she is invested with a new lease of life, it would be a problem for the most acute Jesuitical casuist whether the re-elected functionary be bound by promises made in a former state of official existence. We, who are about to die, salute our readers.

Shut out from the Past and the Future, and able to say little about that fleeting moment known as the Present, we take refuge in Time in general, and proceed to utter a few harmless reflections, which must not be understood as referring to any particular circumstance, place, or period.

It has often occurred to us, that the staff of an amateur Magazine is incomplete without an official Grumbler. The professional Editor can depend upon the daily and weekly Press for sufficiently trenchant criticisms; and, besides, part of his work has been already done for him by the public themselves. Certain authors are distinguished as "popular," and to them he feels pretty safe in applying, for the odour of the literary rose depends in very great measure on its name. But the Editor of a school or college paper has to grope about in a dim mystic twilight, and to work with untried instruments. His constituency is a changing and often a heterogeneous one. Public opinion is an unknown quantity, if indeed it be a quantity at all. The luckless Editor is assured by one friend that reports are never read; by another, that they form the most interesting part of the Magazine, and should be given at greater length; a certain section of readers cry out for "light literature," while another (but perhaps a smaller) party wish to be instructed rather than amused. When the society includes both sexes, and divides its interest between Science and Literature, a functionary who would give general satisfaction must be a veritable Four-faced Janus.

All such complaints, however, commonly reach the Editor by circuitous routes, and without much indication of their respective value. He may even live in blissful ignorance of their very existence, till an avalanche of accumulated censure suddenly precipitates itself upon his devoted head, and crushes all

the Editorial life out of his miserable body. So dire a catastrophe might often be averted by the official Grumbler aforesaid. He must be a person of wide popularity, profound knowledge of human nature, and comprehensive sympathies, fitted to enter into the feelings of either sex and every age, and to appreciate with equal zest Lawn Tennis, Chemistry, College Debates, Comic Songs, Physics, Bicycling, Botany, and a thousand things besides. His activity and zeal must be unfailing, his memory retentive, and his accuracy above suspicion. His tact must be so delicate and his accessibility so perfect, that, without giving cause of offence to any subscriber or non-subscriber, whether male or female, young or elderly, Professor, Demonstrator, or Student, he can search out and gather together all those hints, murmurs, sneers, accusations, and pieces of advice which lurk in dark corners, and float through the air in scarcely visible form. These he must classify according to their origin, their weight, and their worth, and must conscientiously present them to the Editor, nothing extenuating, nor setting down aught in malice. Truly a thankless task, affording unnumbered opportunities for noble self-sacrifice.

When Imlac had enumerated at considerable length the qualities needed by a poet, Rasselas interrupted him with the exclamation, "Enough! thou hast convinced me that no human being can ever be a poet. Proceed with thy narration." "To be a poet," said Imlac, "is indeed very difficult." "So difficult," returned the prince, "that I will at present hear no more of his labours." Lest our readers say the same respecting our "Official Grumbler," we will cease to enlarge upon the virtues of that non-existent but eminently desirable personage, whom perhaps it were vain to seek except where he would not be needed—in Utopia. For the present, be it remembered that some such functions have to be combined with the other duties of an erring human being who is styled Editor.

Another difficulty encountered by this fallible mortal consists in the excessive modesty of native genius. It *must* be modesty; that it can be any lack of zeal, or skill, or industry, we cannot for a moment believe. No one will suppose that all the advocates of "light literature," for instance, demand a commodity which they and their friends are incapable of producing. Nor is it probable that they imagine tales and sketches to grow like flowers of the field, waiting to be gathered by the Magazine Staff in the course

of a morning walk. Evidently neither of these suppositions can apply to members of any advanced educational institution.

Yet, contrary to the maxims of political economists, it is not found in such cases that the demand creates the supply. A professional Editor, having ample funds at his disposal, and failing to engage the services of Lord Tennyson, Messrs. Swinburne, Black, and James Payn, Mrs. Oliphant, and Professors Tyndall and Huxley, would justly excite the indignation of his readers. But none of these writers can be secured for the average amateur periodical, and the budding poet, or novelist, or savant seems to prefer remaining in the bud, and obstinately refuses to "come out." The professional, again, having obtained a promise, can extort its fulfilment with conscientious inhumanity; but the amateur is apt to feel that he still has a weak heart of flesh, which throbs sympathetically at the mention of examinations, and headaches, and other impediments to due performance of contract.

All this may be taken as a faithful picture of the common lot. To *learn* what is wanted is one task, to *get* what is wanted is another, and perhaps the more difficult of the two. At some future time, an Editor may arise bearing the same relationship to present functionaries which man bears to the primitive anthropoid ape, and may at last accomplish, possibly by the aid of the photograph and the phonograph, that seemingly superhuman task of "giving satisfaction."

Meantime, Science will teach our patient official to bow to inexorable Law; and in Colleges which boast a Chair of Philosophy, he may solace himself with the perplexities of the wisest heads of the world, and may extract much comfort from the study of those high problems which do but give the generalised formulæ of petty troubles like his own.

WEDDING CUSTOMS IN GERMANY.

The ordinary traveller on the continent, passing as he does from hotel to hotel, keeping chiefly to the towns, and hardly ever staying more than a month or so in any one place, cannot possibly see much of the domestic life of the people, so that possibly the following account of marriage festivities in Mecklenburg may not be found uninteresting.

The evening before the actual wedding-day is called the

Polter-Abend, which may mean either "noisy-evening," or may take its name from the "*Polter-kammer*," or lumber-room, it being a custom of the neighbours of the bride to get rid of some of their lumber in the way described below. On this evening the bride is presented with a myrtle-wreath, which in the towns is bought by the bridesmaids; but in the country, where all the children usually have a small garden of their own, it is customary for the girls to grow a myrtle-bush in their garden, tending it with the greatest care till their wedding-day, when it supplies the required leaves for the wreath. At the feast, which usually follows immediately after this presentation ceremony, the following is the orthodox menu. First course, fresh-water fish; second course, sausages of various kinds; third course, baked goose and hare stuffed with onions, or (if these cannot be easily afforded) beef-steaks and baked veal with sauerkraut; fourth course, raw salt-herring and raw ham. Untravelled readers may be horrified at the idea of eating raw meat, but although neither baked or boiled, still in reality the herrings and ham are so smoked and cured that they taste quite as nice as the ordinary English preparations, if not nicer. The last course consists of sweets, such as apple and cream tarts, and a peculiar cake called "sand-cake." Unmixed wines are not usually taken, but various kinds of punch or "bowls" are prepared for these occasions. The ladies remain with the gentlemen till the end, and all adjourn together afterwards to some large room, where dancing, theatricals, and other entertainments take place.

Sometimes programmes are printed, usually after the model of theatrical play bills, and if the couple have some literary friend he edits for them a "Wedding Kladderadatch," which contains comic poems and advertisements, and is illustrated in the same style as the real *Kladderadatch*, which is one of the leading German comic papers. These productions are generally very witty, but of course in nearly all of them a large number of standing jokes appear in one form or another. Thus the bridegroom offers a reward to the "honest finder" of his heart, "lost, stolen, or strayed;" and the bride advertises for shoes, as they are by common report the favourite weapons in domestic squabbles. Another common joke, which I have seen in more than one paper, is an advertisement in which the bridegroom announces that he has a few "choice old flames" to dispose of "very cheap," and all "warranted in good condition."

In the intervals between the dances or acts more presentations

are made to the bride and bridegroom, each gift having some typical meaning, and the donor makes some suitable speech, or more generally recites an appropriate poem. Among the more usual gifts is "bread and salt," which is presented with a hope that the young couple will always enjoy plenty. Sometimes a broom is bestowed on the bride as an encouragement to keep her house clean and tidy. A dame's cap is more frequently given to the bride on the wedding eve, but formerly this was deferred till the evening after the ceremony, when the maiden had really become a married dame.

While all this merry-making has been going on within doors a greater din is set up by the neighbours outside, for shortly after midnight these bring out all their broken crocks, kettles, pans, and anything else which will make a noise, and hurl them one after the other at the door of the house with a great deal of clatter and crash, which is supposed to be prophetic or symbolical of the disturbances likely to be caused by the squabbles of the couple in after-life. The practice is now chiefly indulged in merely for the sake of fun; but when some notably quarrelsome man or woman is about to be married, the amount of rubbish thrown is sometimes so great that the street is blocked and the door broken open.

On the next day, either in the morning or in the afternoon, the marriage itself takes place. The morning is the more fashionable time, but the afternoon being more convenient is by far the more common among all but the highest classes.

Before the time of the wedding the space before the altar in the church is strewn with green branches and flowers, and along the floor of the principal aisle flowers are arranged in pretty patterns. In addition to this there is a great deal of less praiseworthy display, for all the plate and silver that can be borrowed is set out on the communion table, so as to make as great a show as possible. Another curious feature is that if some friend happens to have a piece of carpet about the size of a hearth-rug, he sends it down to the church for the couple to stand on during the service. As in nearly all the houses of Germany the floors are of polished wood, and not carpeted at all, very few people can boast such a possession.

The whole party at the wedding wear evening dress. The bride generally appears in white silk, with the bridal veil depending from the myrtle-wreath; while the bridesmaids usually have low-necked ball dresses, made of muslin, net, and tarlatan,

and of the showiest possible colours. The groomsmen all wear wedding-favours of blue ribbon, and each one is expected to present to the corresponding bridesmaid a large bouquet, which she carries with her into church.

At the service, which is of the briefest possible description, the bride and bridegroom exchange rings, the one given to the bride being engraved on the inner side with the Christian name of the bridegroom, while that given to the groom bears in like manner the name of his bride. This custom of having the names engraved in the rings is kept up by the English Royal Family, to whom English newspaper-writers seem to consider it as peculiar, while in reality it is observed by every peasant in Germany who gets married.

The service ends with a sermon, the length of which is said to vary directly as the fee paid to the clergyman, as this gentleman is invariably invited to the breakfast afterwards, and it is reported that he makes up for the smallness of his pay by eating enough to last him six weeks.

In the evening there is more feasting and dancing, in which the couple very sensibly take their share, and do not depart for their wedding tour until a late hour, or even until the following day.

Perhaps the most curious ceremony takes place on this evening. The bride is blindfolded, and has to catch one of the girls who dance around her, and to place her myrtle wreath on her head; and it is said that the one who is thus crowned is sure to be married within the year. The bridegroom has a similar part to play with his male friends. While this dancing and catching is going on the remainder of the party sing a song to the tune of a wedding march.

Before concluding I wish to point out that the above remarks may not be true for all parts of Germany; in fact it is very probable that in the towns on the Rhine and other places on the track of tourists, the customs will be slightly changed; and, doubtless, each of the small kingdoms and archduchies into which until recently Germany was divided, has many observances peculiar to itself, and quite different from these which I have attempted to describe.

E. F. Ehrhardt.

*LORENZ OKEN.**

There are some countenances in which a whole history is written. The portrait of Oken, prefixed to the biographical sketch by Alexander Ecker, shows us one of these. The bright quick schoolboy and student, the enthusiastic and enthralling lecturer, the fiery editor of the *Isis*, the speculative savant who too often accommodated facts to theories, rather than theories to facts, and constructed the broadest generalisations from very scanty particulars, will be better understood after a study of this gipsy-like face, with its full dark eyes, its broad but not high forehead, its humorous and resolute mouth, and its general expression of decision and impatience, with more than a gleam of mischief. We can imagine also his "short, lively, gossipy" father, hot of temper, and not too careful or thrifty in everyday matters, but famed as a relater of legends and a predicter of futurity; given to "sit over a great book and prophesy," and to hold forth to pilgrims and peasants who assembled after service for chat and scandal under the stately lime trees before the little chapel of St. Laurentius. This mercurial little man, Johann Adam Okenfuss, lived in the small Suabian village of Bohlbach, not far from Offenburg. Here, in an eccentrically built cottage, close to the parsonage and the school-house, was born his son Lorenz, on the 1st August, 1779.

The boy's surroundings were not altogether unfavourable to the development of his genius. Schoolmaster and pastor early discerned and fostered his talent, and the latter even praised him from the pulpit! In his fourteenth year Lorenz entered the Franciscan Gymnasium, at Offenbach, where he made good progress. Even by his brothers and sisters he seems to have been appreciated. and some homely stories are told of the ways in which they eked out the pittance of the poor scholar. Sometimes he would be at a loss for writing-paper, and his sister Theresa used to "gather lamb's lettuces, and sell them in Offenburg for a few kreutzers, with which to buy paper to bring home to Lorenz." After leaving the gymnasium he spent a year in the Foundation School of Baden, still winning golden opinions, and thence proceeded to Freiburg, where he matriculated as a medical student, and gained a scholarship of 120 florins yearly. Here he formed many pleasant connections, scientific and literary, as well as a more intimate friendship with Fräulein Charlotte Ittner, whom he at one time

* Lorenz Oken, a biographical sketch, by Alexander Ecker. Translated from the German by Alfred Tulk.

hoped to marry, and who remained his friend and correspondent during his life.

As early as 1802, when a second year's man, he published an *Outline of Natural Philosophy*, classifying animals with relation to their organs of sense, and anticipating many of his subsequent conclusions. Prophecies have a proverbial tendency to fulfil themselves, and theories too early formed are apt to model subsequent observations into their own image. So, perhaps, it proved with Oken. This essay appeared under the name by which he is now generally known, the last syllable of his patronymic having been dropped to avoid the jokes that were constantly made on its similarity to "Ochsenfuss" (Oxfoot). Hug, the professor of theology at Freiburg, was unkind enough to frighten Fräulein Ittner by enquiring one morning "Have you heard, dear Lotte, the sad news that our good Lorenz has lost his *foot*?

In September, 1804, Oken took his degree at Freiburg, and went to Würzburg, but remained there only one *semester*. During this time he wrote his essay on *Generation*, maintaining that "all organic beings originate from and consist of *vesicles* or *cells*," to which he gave the name of "Infusoria." This speculation seems related to more recent theories much as the Atomism of Lucretius to that of Dalton.

In the summer of 1805, he entered at the Göttingen University, and became for the first time teacher as well as student, lecturing on biology and comparative physiology. He also made important investigations into the development of the mammalian embryo, and published them in 1806, as *Contributions to Comparative Zoology, Anatomy, and Physiology*. In this work he demonstrated that the umbilical vesicle corresponds morphologically to the vitellus or yolk bag; a fact already recognised by Caspar Friedrich Wolff, but not applied by him as evidence of a general law of development.

About this period Oken's poverty almost compelled him to give up his scientific career, and he was already contemplating this necessity, when he received a summons from the Weimar government to be "Professor Medicinæ Extraordinarius to the Jena University." In his inaugural address he put forth the doctrine by which, perhaps, he is best known, though its interest (in the form, at least, which he gave to it) is at present chiefly historical. I refer to his "vertebral theory of the skull," according to which the cranium is homologous with the spine, consisting of modified vertebræ. He strains the idea to snapping-point, going so far as to

make the entire skeleton a mere congeries of vertebræ, and finding a miniature of the whole body in the skull, toes and fingers being represented by the teeth. The hypothesis, however, gave a powerful impulse to investigation, and the final result may be summarised in the words of Professor Huxley. "Though they [skull and spine] are identical in general plan of construction, the two begin to diverge as soon as the one puts on the special character of a skull, and the other that of a vertebral column; the skull is no more a modified vertebral column than the vertebral column is a modified skull."

The similar manner in which Oken and Goethe hit upon the "vertebral theory" has often been made use of to throw doubt upon the authenticity of one or the other narrative.

In August, 1806, Oken picked up near Ilsenstein the bleached skull of a deer, and was impressed by "the striking resemblance between the base of the skull and the vertebral column." He says, "Taken up, turned about, gazed at intently, and the thing was done. It is a vertebral column, and lo and behold from this time forth the cranium *is* a vertebral column."

The "discovery" was communicated to Goethe, then Curator of the University, and he invited Oken to spend Easter with him at Weimar. What passed during this visit is not known, but it was not until 1824 that Goethe publicly announced the doctrine as an independent induction of his own. In 1791, he had been struck by the vertebral structure of a sheep's skull, accidentally picked up from the sands of the Lido, near Venice, and had written at the time in a letter to Herder's wife, that he now felt as though standing "before another portal in science, simply waiting some turn of good luck that should hand the key with which to open it." The coincidence simply points to the essentially imaginative and sympathetic character of Oken's mind, which, like that of his poet-rival, was avid of principles, and somewhat impatient of the details by which principles are tested.

The University of Rostock, in November, 1811, contemplated offering an appointment to Oken, but there was much opposition from the medical faculty, as also from the rector and council. The alleged objection was quaint. They did not want any more philosophers in their University! Probably, however, they were not actuated by a disinterested passion for plodding research. Another circumstance throws light on the true motive. The government advised the duke to give the preference to residents in

Rostock, "as in this way travelling expenses would be spared." Doubtless there was a natural desire for protection against imported goods.

Oken stayed in Jena with increased salary, and added honours and duties. He wrote, *A First Attempt at a Theory of Light, Darkness, Colours, and Heat*, a treatise *Concerning the Universe as a Continuation of the Senses*, a *Manual of Natural History*, and several other works. In 1814 he married Louisa, daughter of the Privy-Councillor Stark. The *Isis*, a journal started by Oken in 1817, formed an important epoch in his history. A literary and critical monopoly had been granted by the Weimar Government to the Editor of the *Allgemeine Literatur-Zeitung*, and the *Isis*, which was to contain reviews as well as essays and advertisements, was held to infringe this privilege, and therefore began its career under a ban. The storm, however, might have blown over, but for the indiscreet conduct of Oken. Destined to be an "encyclopædic journal," devoted principally to science, but also containing literary, historical, and artistic matter, the *Isis* soon began to admit political articles, and not unfrequently was distinctly libellous. A critique of the Constitution of Weimar, the offer of a prize for the best essay on the coexistence of literary monopolies with the freedom of the press, the description, illustrated by appropriate woodcuts, of a students' festival, at which a bonfire was fed with obnoxious books, and with emblems of unpopular functionaries, after an address, delivered by Oken himself, on the subject of German Unity — all these were not the happiest means of conciliating an already offended Government. We cannot wonder that Oken, in 1819, was dismissed from his professorial chair. He had done good work, however, in his unlucky *Isis*, by broaching the idea of those annual meetings of scientific men, which formed the model of our British Association.

It was not till 1827 that he obtained another regular appointment as Professor of Physiology and Anthropology at the Munich University. Two years later he received an invitation from the University of Würzburg, which he agreed to accept. This became the occasion of a fresh wrangle. Oken's indignation was aroused by a statement published in some of the newspapers that he had been "transferred" to Würtzburg. He angrily replied that he had not been "transferred," but "summoned," and not content with this vindication of his dignity, went on to attack the Bavarian Government, its colleges and schools, and the manage-

ment of its museums. His remarks upon the exclusion of natural science from the schools are certainly worthy of attention. He shows that as there are three stages in the study of philology, "the preparatory school, the gymnasium, the university," so there should be three stages in the study of natural science. "How," he asks, "would you philologists manage to begin with your pupils if they had not previously got hold of words from their mothers? * * * * And yet this is the very thing you would oblige us university professors to do as regards the natural sciences. In plain words, the students are to learn from us, for the first time, just like children, how to distinguish worms from insects, snails from other mollusca, cabbages, stones, &c." In the sequel, Oken was obliged to resign his appointment, and was disqualified for all civil employment in Bavaria. After several unavailing attempts to secure for him some other post, he was at last nominated Ordinary Professor of the Philosophical Faculty by the University of Zurich; and here he completed his *Universal Natural History*, a work in thirteen volumes. In Zurich he ended his days, dying of peritonitis, August 11th, 1851.

Oken supplied the germs of thought rather than its elaborated product. Yet we can well understand that his very faults—his impetuosity, his wild hypotheses, his premature generalisations—enchained his students, and often gave a mental impulse which could not have been received from a more plodding instructor. In these days, we are too much given to exalt the man who informs, and depreciate the man who inspires. The latter, indeed, is dangerous to commonplace disciples, who, as we hear of some of Oken's pupils, learn to "swear by the words of their honoured master;" but more sympathetic intellects will discard special forms of language and even of thought, and retain only the noble enthusiasm for knowledge and for truth.

V. W. X.

OUR CONTEMPORARIES.

The Central Literary Magazine (July and October) maintains standard. Our College poet, Mr. Brittain, has a pat on the back, and there is a kindly trifle for the organ which our College grinds. A capital little study of child life hails from Leicester. Among several thoughtful and pleasing articles we would gladly notice (if space allowed) "Senex" on Optimism.

Girton (July). We always take up this magazine in awe, feeling that the editor has only to hold on to become the mistress-key of human relationships in Christendom. "A new set of clubs has arisen." In the *Girton* table of weights and measures it must take three societies to make one student. We notice that Miss K. Dixon is propagandising the Imperial policy of the day.

Haileyburian (June and October). The Haileybury specialité is undoubtedly poetry; in fact they have it laid on by telephone from Her Majesty's Embassy at Berlin. "Merlin," who is, we take it, their Laureate, having worked himself into a most unnecessary agitation on an erroneous hypothesis of his Vivien's indifference, is pleasantly chaffed into soberness:

Oh! my own beloved!
Ask you this?
Take it unreproved,
Just a kiss!

Ne'er again speak any
Words like these:
Come and take as many
As you please. &c., &c.

"English as she is spoke at Haileybury, translated from the Sanskrit," is a very happy skit. Where are our budding philologists? Has not our College developed a dialect of its own?

The Institute Magazine (September and October) gives a charming summary of Mr. Lowell's life and work.

King Edward Sixth Grammar School at Camp Hill School Chronicle has begun its existence with a title suggesting a familiar entozoon. A "master-hand," strongly inclining to the *suaviter in modo*, is conspicuous in this tiniest and hopefullest of brochures. As he notes a want of spirit in the games, we suggest the broadcasting of the July *Reptonian*.

The Marlburian (June and July) dismisses George Eliot's pretensions to pure poetry. The Debating society has resolved that "this house, when dead, would rather be cremated than buried."

The Naturalist's World (Sonnenschein and Co.) kindly classifies Mason College as "one of our greatest educational institutions." Thank you, Mr. Naturalist, but we do not consider that we have yet reached an imago stage.

The North London Magazine congratulates itself on its Lady Doctor of Science, Mrs. Bryant, who made her running in logic, psychology, ethics, &c. In these subjects she has been preceded by one, only, a "Hindoo gentleman," in 1876. If art and science are convertible terms, if ethics is indeed a science, and London University an authority, the next vacancy at Lambeth seems to be between the talented sister and our black brother.

The Reptonian (June and July) still plays pleasantly around the illustration to our Magazine, the famous skeleton. It is the only department of our wit which is not "flat as a pancake." But no mere grammar school can dream what that symbol is to a science college student. It stands not for wit, but for worship. In its presence he sees—

> "By light which shines beyond our mortal ken,
> The line of all his lives in all the worlds,
> Far back, and farther back, and farthest yet,
> Five hundred lives and fifty."

By the aid of missals and breviaries drawn up by Darwin and Haeckel, he goes over the old ruts, once more puts on some side—we mean an ectoderm; acquires an interior; votes ascidianism *infra dig*; ambition, "by which sin fell the angels," differentiates him from the amphioxus; a voice bids him separate himself from among the congregation of the fishes, he decides to be neither fowl of the air nor lizard creeping upon the face of the earth, he reluctantly drops acquaintance with the innocent lemurs, and relegates his mischievous cousins to iron cages, and at last stands forth a man. But not yet "achieved is the glorious task." He may positively, if he chooses, be a cricket player; may be a "comfortable run getter, merrily punishing effete bowling and slack fielding;" he may play either "lustily but loftily, or feebly but perpendicularly," he may perhaps "hoick a fiver," or even "notch about twenty." And having exhibited his spirits by "leaping in the air," he will eventually choose between being "bottled by the wicket-keeper," "making his début with a ball quickly slung," "falling a victim to a Yorker" or a "wily lob," or well satisfied that the bowling is "deliciously knockable," he may be "careful to run himself out," or pleasantly acquiesce when "his off stump is discovered to have fainted."

No, a stern fate impels the science student to leave the cricket player behind with the Simiadæ, and, borrowing doubtful Latinity from an enterprising modern classic, to exclaim "Excelsior!"

The Shenstonian and *The Wykehamist* are not nearly so amusing, and no alphabet in the world, however scientifically correlated with the Universe, shall induce us to overshadow with common place the glories of the "Vita Repandunensis."

W. G.

THE UNION.

June 20th.—Mr. GROOM in the chair. Forty-five present, including visitors.

Mr. GARDNER read a paper on "Agriculture," well illustrated by specimens, and by a number of admirable diagrams. After describing the natural agencies with which agriculturists have to deal, Mr. Gardner gave a short history of the rise of agriculture in Great Britain. At the time of the Roman invasion a rude cultivation existed. A species of barley was grown; cabbages, turnips, and carrots grew wild; peas, beans, and potatoes were unknown. This condition, with slight improvements, prevailed up to the sixteenth century, when several works on agriculture were published. The great idea at that time was that there existed a universal generative salt, to which all soils and earth owed their fertility. Sir Hugh Platt tells of a "silly swain," who by accident dropped a sack of corn into the sea, and left it there till the next low tide. Nevertheless, "not being able to buy any other, he bestowed the same wheat on his ploughed ground, and in June, when the harvest time came about, he reaped a rich crop of goodly wheat. And yet notwithstanding," adds Sir Hugh, "neither he nor any other of his countrymen would ever adventure to make any further use thereof, being alike persuaded that unless the corn fell into the sea 'by chance' it would never fructify." Gabriel Plattes, in 1639, gave a description of the rotation of crops. He invented the seed drill. The Royal Society, founded 1655, devoted some attention to agriculture. At the beginning of the eighteenth century, agricultural societies sprang up, and prizes were awarded for the best experiments. Jethro Tull, who invented the thrashing machine, Mr. Wynn Baker in Ireland, and Arthur Young in England, were among the first experimentalists, and in 1802 Sir Humphry Davy delivered lectures before the Board of Agriculture (founded 1793) on agricultural chemistry. The Royal Agricultural Society grew out of the Smithfield Club, and was founded in 1839.

Messrs. LOVE, EHRHARDT, and HOBLEY discussed the paper, and Mr. PARRY moved and Miss CLARKE seconded a vote of thanks to Mr. Gardner.

October 10th.—Mr. GREENE in the chair. Ninety-three present, including visitors. Eighteen new members elected.

Very interesting holiday notes were read by Miss BRIERLEY, on "A Coach Drive in Cornwall," Mr. TURNER on "The Giant's

Causeway," Miss EVANS on "A Tour in Norway (illustrated by sketches and curiosities)," and Mr. JENKYN-BROWN on "The Antiquities of London."

Mr. EHRHARDT moved and Miss NADEN seconded a vote of thanks to the readers.

The following amendment of Rule IX, proposed by the Committee, was then read:

> The officers and members of the Committee, and the officers of the Magazine, shall be elected in the following manner: Every candidate shall be nominated by two members of the Union. All nominations shall be sent in writing to the secretaries, and posted on the notice-board at least forty-eight hours before the annual meeting at which the elections take place.
>
> The elections shall occur in the following order: (1) Officers of the Committee, (*a*) Chairman, (*b*) Treasurer, (*c*) Secretaries. (2) Officers of the Magazine, (*a*) Editor, (*b*) Sub-editor, (*c*) Treasurer, (*d*) Secretary. (3) Eight members of the Committee. Persons nominated to offices who are not elected, and those officers of the Magazine who are not members of the Committee by virtue of their office shall be regarded as nominated for subsequent election to the Committee. The election shall be by ballot, and no cumulative voting allowed.

October 24th.—Mr. GREENE in the chair. Eighty-six present, including visitors. Fourteen new members elected.

The motion affecting Rule IX was then read, and two amendments were brought forward. The first, proposed by Mr. SMITHSON, seconded by Mr. JENKYN-BROWN, was to the effect that a committee of thirteen members should be elected, and the officers chosen from these. The second, proposed by Mr. EHRHARDT, seconded by Mr. IRVINE, provided that an unelected candidate for the office of chairman should, without further nomination, be eligible for election to the office of treasurer or secretary. Both amendments were lost, and the original motion carried.

The following amendment of Rule IV, relating to honorary members, proposed by Mr. BARWISE, was then read: After the word "Secretary," to insert the words "and the Associates of the College."

Mr. EHRHARDT then opened the debate on the motion "That Home Rule should be granted to Ireland." He sketched the

history of the connection of England and Ireland. Henry II swept away the native civilisation; Henry VIII persecuted the Catholics and denationalised the land; James I planted Ulster; Cromwell slaughtered a few thousands, but did no other permanent mischief; William III made penal laws, disqualifying Irish Catholics for holding posts under the Crown, and for exercising the ordinary professions, preventing them from acquiring any interest in land, and making it a felony to educate their children. In 1778 the Catholics were relieved from some of their disabilities, and in 1782 the English Parliament granted Home Rule. In less than ten years the population increased by one-third, and the exports by one-fourth. The agriculture, which had been formerly unable to support the smaller population, now more than supported the greater one. Commerce increased. English manufacturers grew jealous, formed a league, and induced Pitt to bribe the Irish to give up their Parliament. Peerages, offices, cash, were given to the Protestants, and the Catholics were promised that their disabilities should be removed—a promise never fulfilled. Since the Union, there have been constant Coercion Bills, commerce has declined, and poverty has compelled much emigration.

In reply, Mr. IRVINE questioned the motives of Radicals who support Home Rule, comparing them to the generous tea dealers who offer cheap tea and a present. The question is one of expediency. How will it affect Ireland and England? The consequence will be instant separation of the two countries. Till the arrival of Strongbow, Ireland was a field of blood, and were Ireland left to herself, the same state of things would return. The great thing needed is English capital, which would then cease to be supplied. *After* the Legislative Union the population of Ireland increased from four to eight millions.

Miss PERRY gave three reasons for Home Rule—viz., that the wants of the Irish are not known by Englishmen; that the Irish Parliament was unjustly bribed away; and that at present there is a dead-lock in legislation, owing to too great a pressure of work in the English House of Commons. Obstruction is the only available weapon of the Irish.

Mr. G. ST. JOHNSTON said that Miss Perry's statement about obstruction shows up the Irish character. To grant Home Rule would be like laying open the flank of an army to an enemy. The agitators would continue their trade of agitation. Our army, navy, fortifications, and consequently taxation, must be increased.

English landlords would be so persecuted that they must sell or be ground down, and capital would be withdrawn. The Home Rulers of the South would be attacked by the Orangemen in the North, and there would be civil wars. Celts are as incapable of self-government on a large scale as lunatics or convicts. Three things are needed by Ireland—education; just and liberal legislation; and the union of the factions.

The debate was continued in the affirmative by Mr. JENKYN-BROWN, who also suggested three remedies—alteration of the criminal law, Government loans to purchase freeholds, and Home Rule; Mr. MASON, Mr. LOVE, who enquired whether any sane Englishman would, in the *present* state of things, invest capital in Irish property; and Mr. LARNER.

Mr. EHRHARDT, in reply, said that even Pitt admitted the superior prosperity of Ireland during the eighteen years of Home Rule; that there was no agitation, which had before been universal; and that education is now far better in Ireland than in England.

The motion was then put, and carried by a majority of eleven.

COLLEGE SOCIETIES.

Chemical Society.—June 25th, 1884.—Dr. TILDEN showed some experiments illustrating the detection of metals in drinking water, and gave an account of the colour phenomena exhibited by certain metals, and the solutions of their salts. Both subjects were brought forward with the view of inducing members to carry out further investigations in the same direction. A short discussion followed, in which numerous members took part.

October 15th.—A most interesting address was delivered by Dr. TILDEN, on "The Oil Regions of Pennsylvania."

A vote of thanks to Dr. TILDEN was proposed by Professor LAPWORTH, who made some remarks upon the geological bearing of the subject, and seconded by Mr. TURNER.

Mason College Physical Society.—October 9th.—Mr. LOVE in the chair. Miss NADEN read a paper on "Hylo-Idealism," showing that Materialism and Idealism are two sides of a single truth. A discussion followed, in which Professor SONNENSCHEIN and Mr. LOVE took part; Miss NADEN replying. Mr. HAMILTON and Mr. LOVE (for Professor Poynting) exhibited two machines for drawing caustic curves.

Mr. Hamilton was elected an honorary member, and the vacancies in the Committee were filled up by the election of Miss Evans, Mr. Chattaway, and Mr. Ehrhardt.

COLLEGE INTELLIGENCE.

The present session of the College was opened October 3rd, in the presence of a large number of students and friends assembled in the Chemistry Theatre. Dr. HESLOP presided; and after giving a short summary of the work of last session, distributed the prizes. An interesting address on technical education was then delivered by Dr. LAPWORTH, as chairman of the Academic Board, and the proceedings terminated with a vote of thanks to Dr. Lapworth, moved by the PRESIDENT, and seconded by Alderman AVERY. The address will shortly be published.

The list of prizes and honours is as follows:—

Mathematics—Lower Junior Class: W. B. Challen and F. D. Chattaway. Physics—Lower Junior Class: Constance C. W. Naden; Higher Junior Class, A. F. Kellett; Senior Class, R. H. Housman. Chemistry (general course): A. B. Badger; practical chemistry, O. J. Weakley and G. S. Johnson. Zoology: A. B. Badger and S. G. Irvine. Botany (advanced): P. Groom; elementary ditto, A. B. Badger and F. Kellett. Physiology (advanced): W. B. Featherstone and G. T. C. Barber. Geology (junior): A. W. Manton and C. W. Hobley. Engineering (junior): W. B. Challen; Middle-class ditto, A. W. Manton. Greek (junior): Jessie Edwards; second ditto, W. C. Penn. Latin (junior): Julia J. Moore; senior ditto, A. C. Parry. Greek composition: Julia J. Moore. English language: F. D. Chattaway; history, F. D. Chattaway; composition, R. F. Ehrhardt. Anglo-Saxon: A. C. Parry. French (junior): Elizabeth Betney and May F. Schnadhorst; senior ditto, H. Barrow. German (junior): Amy Glydon; senior ditto, Margaret J. Keep.

Hon. Scholarship: Alfred B. Badger, exhibitioner, New College, Oxford.

Scholarship (£30 each) for one year: Frederick D. Chattaway, W. B. Challen, A. F. Kellett; £20 each for the year, Jessie Edwards, A. W. Manton (Tangye scholarship). High School: A. L. Stern, Richmond Hill Road, Edgbaston (entrance); Thomas James Baker, 68, Granville Street (honourable mention);

Charles J. Lay, 239, Pershore Road (entrance). Five Ways School: James H. Shrawley, Westminster Road, Handsworth, and W. Exell, Conybere Street (honourable mention). The three last named are exhibitioners from the Grammar School.

Engineering diplomas: Junior, A. W. Manton; senior, R. H. Housman.

Associates: J. O. W. Barratt, R. H. Housman, G. H. Moerin, J. T. Riley, and W. C. Williams.

STUDENTS' SOCIAL EVENING.

The following programme was very successfully carried out at a meeting held in the Common Room, October 22nd, 1884:

Solo Pianoforte—	"Nebuchadnezzar"	A. F. Kellett.
Recitation—	"The Friend of Humanity and the Knifegrinder."	E. F. J. Love.
Song—	"Golden Slippers"	N. E. Smyth.
Solo Violin—	(i.) "Air du Dauphin" (Roeckel)	J. W. Russell.
	(ii.) "Intermezzo" (Heller and Ernst)	
	Pianoforte Accompaniment	A. F. Kellett.
Song—	"Vicar of Bray"	H. Tarbet.
Recitation—	"Misadventures at Margate"	W. R. Jordan.
Song—	"Willie Montrose"	N. E. Smyth.
Solo Violoncello—	"A Romance" (Mander)	E. F. Ehrhardt.
Reading—	"Battle of Cannae" (Max Adeler)	J. Gladstone.
Song—	"The Mermaid"	A. Lucy.
Solo Pianoforte—	"Tarantelle" (Heller)	G. Payton.
Solo Violin—	"Fugitives Pensées" (Heller and Ernst)	J. W. Russell.
Recitation—	"Burial of Sir John Moore in Scientific Style"	E. F. J. Love.
Song—	"The Leather Bottèl"	A. Lucy.
Recitation—	"The Vulture and the Husbandman"	W. R. Jordan.
Solo Violin—	"Meditation" (Bach)	J. W. Russell.
Reading—	"Relationships" (Max Adeler)	J. Gladstone.
Song—	"Hearts of Oak"	H. Tarbet.
Recitatation—	"The Cork Leg"	E. F. J. Love.

A vote of thanks to the chairman and performers having been proposed by Mr. IRVINE, and seconded by Mr. PARRY, the meeting terminated.

PRIZE COMPETITION.

The time allowed for sending in essays for the George Eliot Prize Competition has been extended till December 6th. For other conditions see the May number of the Magazine. Competitors who have already sent in essays, and wish to avail themselves of the extended time for purposes of revision, may apply at the College Office, by a messenger, who shall give the assumed name of the writer.

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THE Mason College Magazine, BIRMINGHAM.

CONDUCTED BY THE STUDENTS.

DECEMBER, 1884.

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No. 6, Vol. II. **DECEMBER, 1884.** PRICE 6d.

CALENDAR.

December 5.—FRIDAY—Union Meeting, Debate: "That the Nineteenth Century is the Golden Age of English Literature."

,, 10.—WEDNESDAY—Chemical Society.

,, 11.—THURSDAY—Physical Society, "Meteorites," Mr. W. C. Williams; "Properties of Steam," Mr. Manton; Model Lens, exhibited by Professor Haycraft.

,, 13.—SATURDAY—Botanical Society, "Miocene Flora," Mr. W. Gibson.

,, 15.—MONDAY.—Winter Term Examinations begin.

,, 18.—THURSDAY—Winter Term ends.

TO MONTREAL AND BACK.

Imagine New Street Station on the hottest morning in August, a suffocating journey, and the streets of Liverpool absolutely breathless. You may then conceive the satisfaction with which the passengers per Cunard Line found themselves on the tender which was to take them to the S. S. Servia, awaiting them in mid-stream.

On shore, the 9th August was probably very hot—I only remember it as in every respect a pleasant day. We were sure of smooth water for some hours, there was the pleasure of finding oneself in company with many friends, and the prospect of making new ones by the way. We were four hundred and thirty cabin passengers, including some five and twenty British Asses bound for Montreal, beside steerage and intermediate, and some hundred and fifty crew—eight hundred souls within that black hull, which looked so huge from the deck of the little steamer alongside, though small enough from the shore, half a mile away. Getting under weigh we steam calmly past the docks and warehouses of Liverpool, past the sands of New Brighton, the rocky shores of Anglesea, the mountains of Wales, and then the sun goes down

behind the Wicklow Hills, and a bank of purple cloud covers the whole western horizon. We linger on deck, reluctant to go below, while the stars come out and glitter, reflected in the steely blue water.

At six in the morning cessation of movement in the ship, and a rattle at the bows, announce that we have cast anchor in Queenstown Harbour. Most of the passengers—including various grave Presidents of Sections—land early in the day, and are to be seen racing about on Irish cars, like middies ashore for a lark. Reassembling later, a fussy little steamer comes out to us with a pile of letter bags, and sticking on to the side of the big steamer while she slowly moves out seaward, the mails are got on board. Then past the white lighthouse, and boats filled with boys who cheer lustily as we pass, we are fairly off at last, and steaming out over a glassy sea into the misty south-west. At 7.45, ship's time, the Fastnet is just fading from sight. A fine evening gives glorious views of the Kerry Mountains, covered with snowy masses of white cloud. Before us the setting sun gleams from the horizon through the sails of a barque seemingly poised upon the very edge of the world; behind us stretches the blue sea, with a long procession of hurrying gulls, while a rainbow arches the dark waters under them.

The most striking feature of the Atlantic as seen from the deck of a Cunard steamer is its appalling solitude; it is a desert of waters, a wilderness of wave and cloud. Other routes are perhaps less monotonous, but the Cunard course being to the south of the general stream of traffic, day after day passes unenlivened by the sight of a ship, and only at long intervals does the playful porpoise or an occasional whale disturb the even tenour of the way. Now and again there is of course a storm, but one can conceive occasions when even a hurricane would be a welcome relief.

By the way, when will painters cease to represent the waters of the ocean as green, brown, or grey? It is none of these; in the neighbourhood of land, or in shallows, the water is often a peculiar translucent green, which only a few succeed in reproducing, and which is pretty correctly described as "aqua-marine," but in no picture I have ever seen is there the deep, dark, and lustrous *blue* water of the mid-Atlantic.

The events of the first forty-eight hours at sea it were best not to attempt to describe. After that time, however, one was

almost surprised to find that although the watery horizon continued to swing up and down as though it would fling itself over the whole sky, one could bear to contemplate this phenomenon without those feelings of despair which are learnedly attributed to want of "co-ordination of movement." Then the sun opportunely came out, and people bade one another good morning quite briskly, as though they had only parted over night and nothing particular had happened since. The deck chairs were soon brought out, and young ladies in bewitching caps and hats reclined in the sun, daintily imbibing lemonade. As long as the promenade deck could be kept clear one could get some exercise, ten trips and return making a mile, we were told. The way is soon obstructed, however, by groups of loungers, and by players at shuffleboard or quoits, and those who want to walk their miles must bestir themselves early in the day.

On the seventh day from Queenstown we sighted land, and all the afternoon passed within view of the sandy banks which skirt the shore of Long Island. About the same time indications were not wanting that we were approaching a foreign shore. Ships of unfamiliar rig began to hover like white-winged birds all about us, especially three-masted schooners of graceful build, some evidently of considerable burden. These are the vessels which carry on the whole of the coasting trade of the United States. As the evening darkened we could see the lights at the hotels on Coney Island, and before long we were inside Sandy Hook, and at anchor for the night. An early breakfast in the saloon, and by eight o'clock we found ourselves in the Custom House at New York. I pass over the confusion, noise, and dust during the two hours spent in waiting for my single portmanteau, also the requests for tips modestly preferred by the officials; but I came hastily to the conclusion that however admirable the other institutions of the United States might be, the Customs were very badly managed. Committing my baggage to the express-man in waiting, I set off on foot, and at last found myself with two young fellow-travellers in the streets of New York. The foreign aspect of the city struck us at once—the outside sun-shutters to the houses, and the trees in many of the streets, vividly recalling some of the German towns. Broadway, however, and the other business thoroughfares look, so far as the houses are concerned, like parts of London, Paris, or any other large city; but probably no city in the world is disfigured, as New York is permitted to be, by the huge telegraph posts in

the middle of the pavement, by the railways over head, and the execrable pavement under foot.

The Fifth Avenue Hotel, facing Madison Square, is described by Appleton as "an imposing marble structure." Here you may see many of the leading politicians of the Republican party, and during our stay the President, Mr. Blaine, and General Butler successively occupied rooms there.

The first thing an Englishman has to learn, in an American hotel, is to face, with some show of calmness, the bill of fare. "What!" you feel inclined to say, "all these things for breakfast!" and feeling somewhat overwhelmed, you take refuge in modestly ordering a chop, and some "English breakfast tea;" then, seeing plenty of fruit about, you think it will be nice to have a peach to finish up with. The second morning, however, you know better, for in the meantime you have seen how the Americans do it. Every one is provided, first of all, with a glass of ice-water, pronounced "whatter," and then if you adopt the habit of the country, you begin:

"Bring me some cantelope (melon) off the ice," and whilst disposing of a mass about the size of your head, you continue deliberately:

"Mush, stewed oysters, blue fish, cutlets, corn and chipped potatoes, omelet, muffins, coffee, and guess I'll take a glass of milk!"

At American hotels the charge per diem covers everything except such extras as carriage hire, and what figures in the bill as "bar," but at dinner almost every one drinks water, and a great deal of it, occasionally milk or clear cold tea, rarely wine, never beer; the quantity of solids consumed is, however, something stupendous!

A visitor to New York has to see the shops in Broadway, and the houses or palaces in Fifth Avenue; he ought to take a ride in the overhead railway, if only for the sake of seeing what all the people in the first and second floors of the houses are about. The fine suspension bridge to Brooklyn is best viewed by crossing the Fulton Ferry, where also may be seen an endless variety of the wonderful river steamers. Central Park is pleasant, and Manhattan Beach on Coney Island, a sandy bank on the east coast of Long Island, is worth a visit. Here the New Yorkers are wont to disport themselves in the blue waters of the Atlantic, while the strains of a band and the excitement of fireworks add to their enjoyment of the ocean breezes.

My first move was to Boston, a railway journey of about six hours, through pretty wooded country, which recalled some parts of Hampshire. As this was my first trip in "the cars," I was naturally interested in noting the characteristics of the railway system as compared with our own. First of all there is a ticket office in every considerable hotel, so that tickets can be procured before starting—a great convenience. Secondly, one has no trouble with luggage *en route*, for on arriving at the "depôt" it is handed over to a porter (no fee), who gives in return a brass "check," bearing the number attached to your trunk, and this must be produced at the journey's end when you claim your things.

The cars are long vehicles, provided with a door at each end and a passage down the middle, with a row of seats each for two persons on either side, the backs of the seats being reversible, friends can sit together face to face. A single car accommodates about seventy passengers, and the advantage of being able to move readily from place to place comes to be appreciated in the long journeys between the chief towns. As in England, there are "parlour cars" in addition to the ordinary ones. Soon after starting the conductor comes along for the tickets. This gentleman is quite a personage, but if good-natured will sometimes take a seat beside you and condescend to quite familiar converse. In a few days the novelty of this kind of thing ceases to produce any sensation, and one learns to shake hands quite cheerfully with the forge men and factory hands at the works visited. The negro waiters alone refrained from offering this kind of salutation, though certainly not from any want of self-approval. But this by the way. In hot weather ice-water is handed round by an attendant; this seems to be the only free thing in this dollar-loving country. The same youth then produces newspapers and periodicals, re-appearing immediately afterwards with a basket of fruit. If you are travelling all day there is no need for anxiety about food; on the long lines there are dining as well as sleeping cars, or if not there is sure to be a halt of twenty minutes or so for dinner at a station. On these occasions it is necessary to keep a sharp look-out or you may get left behind; no bell or whistle is sounded, the conductor says simply "All aboard," and the train moves on. At all the depôts of any importance the clamour of the engine bells is a thing which the stranger cannot help noticing, though it is far less agonising than the eternally shrieking whistles of our English locomotives.

Boston of all American cities is one of the most interesting to an Englishman, being not only one of the oldest cities in the United States, but the scene of many of the earlier events which led to the War of Independence; moreover, Cambridge is but two miles away, and of course all Bostonians take pride in the belief that their city is the focus of all the learning and all the refinement of the West.

Being provided with letters of introduction, I made haste to present them, and thanks to the kindness of my new friends I had opportunities not only of seeing the public buildings and the suburbs of Boston to advantage, but had a peep into several charming American homes, not soon to be forgotten.

For details concerning the Treasury, the Post Office, the Public Library, the Institute of Technology, the Clubs, the Churches, all the wonders of Harvard and its surroundings, are they not written in Appleton for those who choose to read? There, too, may be found the acreage of Boston's so-famous Common, and the exact dimensions of the Bunker Hill Monument.

Let us take a drive to Brookline, most delightful of suburbs. First to the top of Cory's Hill, where in sight of the city itself, the harbour, and the old church steeple, our kind and enthusiastic Boston friend tells us the story of Paul Revere's ride. Then round Jamaica Pond, a beautiful sheet of water, to the Cemetery. The Americans take great pride in their cemeteries, and expect strangers to admire them; the gardens and trees are always delightful, and nothing would be more charming if it were not for the monuments, which are often in doubtful taste.

But Brookline itself baffles description. Imagine Edgbaston with all the ugly houses replaced by pretty villas of wood, each with its outside gallery or piazza, and painted all kinds of soft colours. Next conceive a vegetation surpassing in luxuriance and variety, the maple and large-leaved American oak everywhere, and lastly try to imagine the total abolition and removal of all walls, fences, palings, and enclosures, with the grass lawns coming down to the edge of the "side walks," so that one can step from one to the other without lifting the foot an inch. If all these effects together can be correctly visualized, you can see Brookline; otherwise some three thousand miles of land and sea must be traversed in order to behold the like.

A night journey of some fourteen hours takes us to Montreal. First impressions of a "rattletrap" railway station, and the

peculiarly dilapidated calèches, were not entirely favourable, but discontent was subdued in presence of the indulgent reception accorded by the Custom House Officers. Having fortunately been honoured by an invitation to stay during the meeting with a Canadian family, there was no question of hotels.

Montreal is built upon a triangular island, in the centre of which rises a considerable hill, Mount Royal, from the wooded summit of which the city stretches downwards till the skirts, lined by wharves, sweep the left bank of the St. Lawrence. On a fine day there can be few fairer prospects than the view from the top of the mountain or from the galleries of the houses near the upper end of University Street, where it was my good fortune to be billetted. A magnificent panorama on all sides, Bel-œil, and other mountains to the south across the river, the St. Lawrence running east and west, all Montreal in the foreground—a picturesque mass of red brick and white stone, set in a bower of green trees, the tin roofs and cupolas glittering in the sun—to the north the Ottawa River and the great plain beyond the Isle Jesus.

Descending the steep streets, occupied in the upper part by substantial residences, the city proper is reached by miry ways more treacherous both to horse and foot than even the streets of New York. There is evidence here of considerable commercial activity, but one is particularly struck by the large number of churches and religious houses. These latter belong almost exclusively to the French inhabitants, who constitute about half the population. Between the worshippers at Notre Dame and those at any of the numerous Presbyterian Churches there seems to be a great gulf fixed, which even a visit of the British Association does not appear to have been competent to bridge over.

The English in Montreal, however, seem to be getting along pretty fast, for since the meeting a Free Library has been endowed, and the classes and degrees at the McGill University have been thrown open to women.

It can scarcely be expected that I should describe a meeting of the British Association. The proceedings in Montreal differed in no essential particular from those with which many of us have been familiar on similar occasions elsewhere. There was the usual routine of attendance immediately after breakfast at the Reception Room to get the journal containing the programme of the day, then to the Committee Room of one's own section, where the sight of so many English friends made one apt to forget that we were all

so far from home. One of the most highly valued of the privileges thoughtfully procured for us by our kind Canadian hosts was the transmission of free cable messages to England, so that having the power to communicate with home we could settle down to work comfortably.

But a British Association meeting is not all work. Having perspired freely in the sections in the morning one felt justified in taking a little rest after lunch, especially with the thermometer at 95°. Later in the afternoon the garden parties arranged for our enjoyment were in no danger of being forgotten, and the evening brought change of employment in the shape of a presidential address, a reception by the Governor General, or a private party such as the delightful evening at Mrs. Gault's, of which an account appeared in the English newspapers. Needless to say that the visitors were made much of by the Canadians. Everything that was possible was done most generously for our comfort and enjoyment. One thing, however, they could not do; we heard a great deal about the charms of the Canadian winter, but our friends had not been able to arrange for an opportune fall of snow. The delights of a slide down the mountain were therefore untasted even in imagination, for "Who can hold a fire in his hand by thinking on the frosty Caucasus?" Apropos of the arrangements for the comfort of visitors it appears to have been a mistake on the part of a certain member of the Association, who is reported to have exclaimed, on seeing the lump of ice deposited at every door, much as the milk cans are left in London, "How very kind of them to try and make it cooler for us!"

The summer equivalent of "tobogganing" in Montreal is presumably shooting the rapids. This expedition, performed several times every day in a steamer, is unquestionably dangerous. and during the passage we all thought of Mark Twain's Mississippi pilot. A wreck, standing high on one of the rocky ledges, testifies to the possibility of accident..

Of course all visitors to Montreal find their way to Quebec. The best way is by water. The steamers leave Montreal in the evening and reach Quebec about half-past eight the next morning. As we approach the city the large island to the east seems completely to close the way, and from a little above Quebec the aspect of the St. Lawrence is that of a lake enclosed within cliffs. A few miles lower down the stream widens and the north shore presents a succession of mountains, many nearly 2000 feet

high, from Cap Tourmente onwards to the entrance to the Saguenay.

But where are the ships? All the way down we have been expecting to meet great steamers and timber-laden fleets. There are the wharves, and sundry warehouses, but a solitary Allan liner, with two or three river steamers of the now familiar type of ugliness, and perhaps a dozen colliers, alone represent the "masses of shipping" promised by the guide book. Is the glory of Quebec wholly departed—westward? Landing on the quay, you soon find yourself panting up the steep and narrow street of a poor and dirty French town; but once clear of the odours of the lower town and safely landed, even though breathless, on the Dufferin Terrace, you begin to perceive not only the grandeur of the situation, but the beauty of the old city itself. The houses, tall, irregular, and gloomy, are perched in all degrees of seeming insecurity on the cliffs and all down their steep sides. Few of the tin roofs, fortunately, are new, and the rust upon them glows in the sun with the red lustre of gold. Across the St. Lawrence, here about two miles wide, is Pointe Levis, a rocky promontory crowned with scattered buildings. The Citadel which occupies the heights above Quebec overlooks a vast panorama which includes the historical Plains of Abraham, the majestic St. Lawrence for forty miles or more, and is closed in to the north and east by the imposing mountains of the Laurentian range.

The population of Quebec, save for the small English or Canadian garrison, is French; the aspect of the people, and of their quaint old quiet streets, suggested such a place as St. Peter Port in Guernsey, or a Norman town like St. Malo.

Returning to Montreal, and bidding a reluctant farewell to my good friends there, I set off at midnight westward, exchanging rail for steamer at Brockville, and passing through the "Thousand Islands," the beauties of which seem to have been exaggerated. There are too many of them, and as they look very much alike, you have had enough by the time you have seen a dozen or two, After touching at Kingston, the whole night is spent in crossing Lake Ontario to Toronto. The day is occupied in looking over the University College, an imposing building surrounded by a beautiful park, and in the Observatory, which is also the chief meteorological station of Canada.

From Toronto to Niagara is a short journey across the head of the lake, and the Falls are only seven miles away. The half hour

in the train is passed by all but the hardened excursionist in silent expectation. We just drop our bags at the Clifton House, and run across the road to have a look whilst there is still daylight. Speechless we stand and gaze a full half hour, till some one exclaims—"Is that all!" and then we turn and sadly seek our supper.

The Falls are disappointing at first sight, but the next day devoted to a careful exploration of Goat Island produces a change of feeling, and before two days are over you are unwilling to tear yourself away.

One remarkable experience, and perhaps not unattended by danger to nervous people, is the descent to the "Cave of the Winds," under the American Fall. You begin by stripping entirely and putting on a sort of bathing dress with a waterproof head cover, the feet being cased in rough shoes of felt to avoid slipping. Then descending the path, and following the guide through the veil of blinding spray at the side of the fall, you find yourself in a cavern at the back, and on favourable days, when the wind blows the mist away, you can see through the falling water. Afterwards mounting some rocks you pass round a gallery constructed immediately in front, all the time deluged with a torrential rain, and amid a deafening thunder, which completely drowns the voice. The rainbows, complete circles, springing within a yard of your feet, are wonderful to behold, their inclination depending, of course, upon the position of the sun.

A night in the cars took me to Detroit, and a second night on board a steamer of Lake Superior Transit Company brought me to Cleveland in Ohio. Both these are new and rapidly growing cities, the former on the river which connects Lake St. Clair with Lake Erie, the latter on the south shore of Lake Erie itself.

Time was now getting precious, and as I wanted to see something of the industries of Pittsburg, and especially to visit the chief centres of the oil regions of Pennsylvania, I was obliged to hurry forward.

Before returning to New York, however, I was enabled to see Buffalo and Albany, the latter beautifully situated on the River Hudson. At several of these cities I had opportunities of seeing some of the political demonstrations in connection with the Presidential Election, then imminent. The largest was in Buffalo. First came a dozen or twenty boys carrying torches, then a very noisy band with banners, next several hundred men wearing a

ridiculous uniform, and each provided with a red or green lantern; then a number of men in a kind of red Garibaldi shirt, dragging several small cannon, then more torches, and caps, and lanterns, and badges. Bonfires were lighted at the corners of the streets and presently there was a regular bombardment of the town with coloured shells, and rockets, and noisy explosions. These were Democrats; the Republicans carry on a similar game other evenings. Strange to say these proceedings seemed to be taken very coolly by the citizens, and brought together no rough mob as would certainly be the case in any town in England.

A week later found me on the Atlantic again, impatient for home; but, as the low shores of Long Island faded from sight, I found myself already calculating the time when it would be possible for me to pay a second visit to my American cousins.

B. A.

THE UNION.

October 31st.—Annual meeting. Mr. SMITHSON in the chair. Eighty present. Nine new members elected.

As there were no candidates for the offices of Editor and of Sub-Editor of the Magazine, Mr. EHRHARDT moved and Miss SOUTHALL seconded: "That the Treasurer only be elected;" but on the suggestion of Miss NADEN, the following resolution was carried: "That the Treasurer and Secretary of the Magazine be elected this evening." The meeting then proceeded to the election of the Union Committee and its Officers, Mrs. Oerton, Miss Bettney, Mr. Chattaway, and Mr. Parry being appointed tellers. Mr. G. St. Johnstone being the only member nominated as Chairman, he was declared duly elected, and took the chair.

Miss ALBRIGHT then re-opened the question of the Magazine, moving: "That all the Magazine officers be requested to continue in office," which was seconded by Mr. BARWISE. Dr. TILDEN then moved a special vote of thanks to Miss Naden for her services as Editor, which was seconded by Mr. EHRHARDT, and supported by Dr. HAYCRAFT, who suggested that the two resolutions before the meeting should be combined. This was done, and the resolution was carried unanimously. Miss NADEN, in reply, said that for the next week there would be no editorial or sub-editorial duties to perform.

The election of Officers of the Committee were then proceeded

with, Miss Edwards being elected treasurer, and Miss Paul and Mr. Ehrhardt secretaries. Ballot papers for the election of the Committee were then distributed and filled up, and in the absence of the tellers, the Union Report and the Magazine Report were read. The former will, as usual, be printed separately; the latter, though satisfactory, showing some probability of a small balance in hand, was only an interim statement, and a fuller report will probably be printed after Christmas. Mr. BARWISE then moved, and Mr. JORDAN seconded, an amendment to Rule IV, to the effect that all the Associates of the College should be honorary members of the Union; but the proposal was rejected. The result of the elections was then read. Officers: Chairman, Mr. G. St. Johnstone; Treasurer, Miss J. Edwards; Secretaries, Mr. E. F. Ehrhardt and Miss A. M. Paul. Committee: Mr. Clayton, Mr. Jenkyn-Brown, Mr. C. Greene, Miss Sturge, Mr. Barratt, Mr. Cullis, Miss Charles, and Miss Moore.

Mr. EHRHARDT then moved, and Miss STURGE seconded, "That Mr. Stern and Miss Sheppard be appointed auditors for the ensuing session." A vote of thanks to the retiring officers was moved and carried unanimously.

November 7th.—Mr. G. ST. JOHNSTONE in the chair. Ninety-three present.

Miss SMITHSON read a paper on "Chartism." After a short account of the effects of the Reform Bill of 1832, and of the great depression in trade, and consequent misery which ensued during the years 1839-42, she recapitulated and explained the six points of the Charter—viz.: Manhood Suffrage, Annual Parliament, Vote by Ballot, Abolition of the Property Qualification, Payment of Members, and Equal Electoral Districts. The Charter was drawn up in 1838, at a Conference held in London, and was enthusiastically received at two large meetings held in London and Birmingham. Feargus O'Connor was the chief leader. After an interesting account of O'Connor, and quotations from a song composed in his honour, Miss Smithson described the outdoor and indoor meetings held by the people in Wales, Lancashire, and Yorkshire, in the Midlands, and especially in Birmingham, where the Chartist Convention was established after its removal from London in 1839. The interesting story of the Chartist riots, and the subsequent arrests and trials was then related, the cases of Frost and Thomas Cooper being especially mentioned. The last effort of Chartism was in 1848, when a monster demonstration was

to have been held on Kennington Common, which, however, turned out a miserable failure. The repeal of the Corn Laws was the first step towards the overthrow of Chartism, and of the spirit which it embodied, and the tendency of later legislation has been in the same direction.

The paper was discussed by Mr. TURNER, Miss NADEN, Mr. LOVE, and Mr. JENKYN-BROWN.

Miss PAUL then read a paper on the "Origin and Development of the Nervous System," well illustrated by diagrams, and dealing chiefly with the progressive structure of the nervous system in the Invertebrata, the Hydra, the family of Ascidians, the Snail, the Cuttlefish, and the Centipede being taken as types. After a short description of the embryology of the Chaetopod Worms, Miss Paul finished her paper with an account of the Cerebro-spinal system of the Vertebrata.

A discussion followed, in which Miss EVANS and Mr. LOVE took part. Mr. BARROW moved and Miss PERRY seconded a vote of thanks to the two readers.

November 14th.—Mr. G. ST. JOHNSTONE in the chair. Sixty present. Three new members elected.

The subject drawn for the Impromptu Debate was "That early rising is one of the greatest vices of the nineteenth century." Miss NADEN quoted Herbert Spencer to the effect that primitive ideas are generally false, and showed that the prejudice in favour of early rising is so ancient as to have become proverbial, and is therefore likely to be a mere relic of barbarism. After referring to various proverbs, she observed that the early bird may get on very well, but what about the early worm?

Mr. JENKYN-BROWN replied that the early worm is not early enough. If he did not stay in bed too long, he might escape the early bird. One of the great joys of life is a good breakfast, and to enjoy it at your leisure you must rise about three.

Miss E. WILLIAMS said that a good supper is as desirable as a good breakfast.

Mr. HART thought it as well to get up about ten.

Mrs. BODINGTON heartily sympathised with the motion, and advocated the abolition of parents and guardians, who insisted on cold baths in the morning, and disapproved of late suppers. She related the story of the Cambridge undergraduate, who objected on principle to early lectures; he did not mind sitting up till four or five, but always went to bed before seven.

Miss RUBERY remarked that early rising is disagreeable but right.

Mr. LARNER, that it deteriorates the race.

Miss PAUL, that more work can be done in the morning than at night.

Mr. IRVINE thought that the vice is not a common one. It is truly sad that the advocates of early rising devote so much attention to breakfast.

Mr. VOSE recommended a good walk in the morning.

It was here proposed that the subject of debate should be changed. The CHAIRMAN assented, and called upon Miss Naden to reply.

Miss NADEN said the time which members considered early seemed to vary from three to ten. Early rising is, especially in winter, uncomfortable, and involves an unsocial evening.

The motion was then put to the meeting—affirmative, 17; negative, 27.

The next subject drawn was "That the abilities of women are inferior to those of men."

Mr. EHRHARDT considered that the women of Mason College are not fair representatives of their sex, being far superior to the general run, but that even they do not have it all their own way. Women are supposed to be able to make better puddings than men, but the best cook the speaker had ever heard of was a great mathematician. When he (the speaker) had finished his career, he meant to secure as cook, at a salary of £1,000, a B.Sc. distinguished in quantitative analysis.

Miss H. PERRY thought the arguments in favour of the superiority of women too obvious to need enforcement.

Miss THOMSON said women can do everything they try, but have been kept back by men.

The debate was continued by Mr. MCCROBIN and Miss CHARLES on the affirmative, and Miss LINDSAY, Mr. PARRY, Miss CHAMBERS, Miss COHEN, and Mr. H. MASON on the negative. Some of these speakers had been drawn for the affirmative.

In reply, Mr. EHRHARDT enquired why, if women are superior, they allow themselves to be "kept back" by men, and pointed out that they are beaten on their own ground, since fashions are set by a gentleman, Mr. Worth.

The motion was then put to the meeting—affirmative, 21; negative, 15.

November 21st.—Mr. G. St. Johnstone in the chair. Eighty-two present.

The following rules recommended by the Magazine Sub-Committee were read—

1. "That the Magazine be conducted by an Editorial Board, to consist of an Editor, a Treasurer, a Secretary, and two other members, to be elected at the General Meeting of the Union."
2. "That the Board meet as often as necessary before each issue, for the consideration of contributions and the transaction of other business, and that in any emergency that may subsequently arise, the Editor be empowered to use his own discretion."

Miss Naden then read a paper on the "Evolution of the Sense of Beauty." We regret that space does not permit us to print an abstract. The paper was discussed by Mr. Love, Mr. L. E. Smith, Miss Chambers, Miss Lindsay, Miss Rubery, Mr. Jenkyn-Brown, Professor Smith, Mr. Barratt, and Professor Hillhouse.

Mr. Craig moved, and Mr. Jordan seconded a vote of thanks to Miss Naden.

November 28th.—Mr. G. St. Johnstone in the chair. Ninety-seven present.

The meeting was devoted to readings, upon which criticism was invited; the programme being as follows:

Selection from	"Uncle Remus"	Mr. Smithson.
,,	"The Epic of Hades"	Miss Dixon.
,,	"Only a Shaving"	Miss C. Lloyd.
,,	"Kilmeny"	Miss H. Perry.
,,	"Horace"	Miss L. Crosskey.
,,	"Virginia" (Recitation)	Mr. W. R. Jordan.
,,	"The Gothic Steed"	Mr. Stern.

Criticisms were offered by Dr. Tilden, Mr. E. F. Ehrhardt, Miss Sturge, Mr. B. F. Jordan, Mr. Jenkyn-Brown, Miss Sheppard, Mr. Parry, Mr. Barrow, Miss M. D. Albright, Miss M. C Albright, Miss Southall, Miss Paul, Mr. Smithson, Miss Rubery, Mr. Love, Miss Lloyd, Miss Evans, Miss Cohen, Mr. Larner, Mr. Barratt, and Mr. Turner.

December 5th.—Mr. G. St. Johnstone in the chair.

One hundred and six present. Three new members elected. Mr. Smithson proposed the postponement of business until after the debate, and Miss Southall suggested that a special meeting

should be called on a subsequent evening, but both suggestions were opposed by Mr. EHRHARDT, and finally rejected by the meeting. The CHAIRMAN then moved, Mr. EHRHARDT seconded, and it was unanimously resolved that Mr. Cope, the sub-librarian, be elected an honorary member of the Union. The CHAIRMAN then called upon Mr. EHRHARDT to read the rules for the future constitution of the Magazine, of which notice had been given at the previous meeting, also the amendments, which were as follows:

(1.) Amendment proposed by the General Committee—

"That the Magazine shall be conducted by an Editorial Board, consisting of seven persons, including an Editor, Secretary, and Treasurer. The Editor shall also be a Member of the General Committee. With regard to the second rule, the Committee recommend its rejection."

(2.) Amendment proposed by Messrs. BARRATT and L. E. SMITH—

"That the Magazine shall be conducted by an Editorial Board, consisting of seven persons, namely, an Editor, Secretary, Treasurer, and four Sub-Editors."

Mr. EHRHARDT then moved, and Mr. CLAYTON seconded, the adoption of the rules proposed by the Sub-Committee, which were adversely criticised by Mr. GREENE. Miss BRIERLEY spoke in their favour. Mr. G. ST. JOHNSTONE moved the first amendment, which was seconded by Miss PAUL. A short discussion followed, and Mr. BARRATT then moved his amendment, which was seconded by Mr. L. E. SMITH, and criticised by Mr. B. F. JORDAN and Mrs. SMITH. It was then put to the meeting and lost by a large majority, only the mover and the seconder voting in its favour. Votes were then taken on the first amendment, which was carried. It was again put to the meeting as a rule, and carried by the votes of more than two-thirds of the members present.

The next business was the election of the Editorial Board and its Officers. Votes were first taken for the two candidates, Mr. W. COLLINGWOOD WILLIAMS and Mr. E. F. EHRHARDT, who had been nominated to the office of Editor, and Mr. WILLIAMS was elected. While the votes were being counted, Dr. TILDEN suggested that some means should be taken of informing visitors who came to hear a debate of the time likely to be occupied by business. The CHAIRMAN announced that Miss H. Perry and Mr. F. J. Cullis were returned unopposed as Secretary and Treasurer of the Magazine. Votes were then taken for the Ordinary Members of

the Board, and in the course of the meeting it was announced that the following were elected: Miss Albright, Miss Brierley, Mr. Jenkyn Brown, and Mr. Ehrhardt. During the absence of the scrutineers, the CHAIRMAN called upon Miss Brierley to open the debate on the proposition "That the Nineteenth Century is the Golden Age of English Literature."

Miss BRIERLEY defined a "golden age" as, (1) An age in which the conditions are most favourable to literature, and (2) An age in which literature is richer, vaster, and more splendid than in any other. We have inherited a good prose style from Steele, Addison, &c.; we have inherited the newspaper, the review, the novel—which last speaks at least *three* volumes! New stimuli to thought and action came from the French Revolution, and culture was spread by the railway, the telegraph, the penny post. Passing to the second head, the speaker observed that if by "literature" were meant the drama, the golden age would be the Elizabethan, but that period cannot compete with ours in history, biography, fiction, or science. As masters of scientific literature, transmuting the dross of facts into the gold of truth, she cited Darwin, Huxley, Tyndall, and Herbert Spencer; as historians, Macaulay, Froude, Green, Carlyle; as essayists, Lamb and Matthew Arnold; as novelists, Scott, Dickens, Thackeray, George Eliot; as poets, Wordsworth, Coleridge, Byron, Shelley, Keats, Browning, Tennyson, and others. Finally, the nineteenth century inherits the accumulated wealth of all preceding ages.

Miss M. C. ALBRIGHT replied that quantity is no criterion. This is the "golden age" of lending libraries, yellow-backed novels, and painfully minute biographies. Such weeds are not merely indifferent; they are obnoxious. Even our valuable literature is of the guide-book kind, useless beyond a limited epoch as the guide-book beyond a limited region. True literature should embody one age, and influence many. A golden age is (1) an age of originality, when novel thoughts are presented in novel words; (2) a time when language is lucid, and full of variety and expression; (3) an age in which the proportion of masterpieces is greatest. Such was the period from 1580 to 1680. She cited Spenser, Shakespeare, of whose dramas there are twelve, any one of which would make the fortune of any poet, Milton, and Bacon, the father of scientific literature. The nineteenth century is a beautiful tropical jungle of short-lived plants; the Elizabethan era, an English park of ancient and hardy trees.

Mr. B. F. JORDAN contended that a "golden age" is one which appreciates literature. It is a fallacy to suppose that because the "divine and immortal" Shakespeare is the greatest of poets, therefore the age which produced, but did not appreciate him, is great. Socrates was the apostle of liberty. Was the age which produced and poisoned him the "golden age" of Athenian freedom? At the end of the eighteenth century came a determination to be free—a new energy, a new life. In poetry, we have Byron, Shelley, Keats; in prose, Newman, Matthew Arnold, Froude. As to our yellow-backed novels, just as much rubbish was produced in former days, but it is forgotten as ours will be. George Eliot is unique in fiction, as Shakespeare in the drama. Modern literature influences all classes, and working men may be seen in the Free Library studying the "monthlies and fortnightlies."

Mr. JENKYN-BROWN insisted that more credit is due to those who produced good literature without the railway, the penny post, national education, &c. *Science* is not included in, but opposed to literature. Among the authors writing from 1580 to 1680 the speaker cited, in science and philosophy, Locke, Bacon, Newton; in theology, Baxter, Barrow, South; in memoirs, Pepys and Evelyn; in history, Clarendon. He denied that Shakespeare, Spenser, and Milton, were unappreciated by their contemporaries.

The debate was continued by Miss NADEN, Miss CHAMBERS, Miss LLOYD, Mr. STERN, Miss DONKIN, Mrs. BODINGTON, and Miss STURGE.

Miss BRIERLEY replied briefly, and the resolution was put—affirmative, 19; negative, 31.

The CHAIRMAN then called upon Professor Arber, who had promised a few remarks on the subject under discussion.

The PROFESSOR, who was received with loud applause, expressed pleasure that a literary subject had been selected for debate. He spoke of the transcendent character of poetic genius, and of the drama as the highest possible form of literature. The Elizabethan era was undoubtedly the "golden age."

The meeting terminated with a vote of thanks to Professor Arber, moved by Mr. EHRHARDT, and seconded by Mr. PARRY.

COLLEGE SOCIETIES.

Physical Society.—Thursday, November 6th.—Meeting held in the Physics Lecture Theatre; twenty-five members present. The chair was taken by the President, Professor POYNTING.

The Chairman announced the resignation of Mr. Housman, as secretary, and the appointment of Miss Evans to the vacant post.

After the passing of a vote of thanks to Mr. Housman, and the transaction of other business; the Chairman called upon Mr. BROWNE to read his paper on "The Planets," which was illustrated by the magic lantern.

The Chairman then called upon Mr. KELLETT to read his paper on "The Luminosity of Flame;" and after some discussion, in which a large number of the members present took part, Mr. Turner and Mr. Kellett showed some experiments illustrating the paper.

Mason College Botanical Society.—This Society met for the first time this session on Saturday, November 1st, at the house of Miss Mathews, Highfield Lodge, Harborne Road.

A very interesting paper was read by Professor HILLHOUSE, on "The Function of the Wood-vessels in Plants, especially of the Pitted and Annular Vessels." With the help of recent investigations on the subject he showed that the old idea that these vessels are simply air conductors or air passages is erroneous, and that they play an active part in the diffusion of fluids, which takes place not merely through their walls but through their cavities.

The next meeting was held on Saturday, November 15th, at the house of Professor Hillhouse. Miss CHARLES finished the account of M. Guignard's researches into the development of the embryo sac, which she began last session.

The general meeting was held on Saturday, November 29th, at the house of Professor Hillhouse. Miss Charles was elected to the office of Vice-President, left open on account of the departure of Mr. Percy Groom from the College. Mr. Ehrhardt was elected secretary.

The President, Professor HILLHOUSE, then read a paper on "The Unity of Plant Structure," giving an account of experiments by himself and by other observers. Several drawings illustrating the paper were handed round.

Mr. Ehrhardt having declined the secretaryship, Mr. Kellett was elected to that office.

THE LADIES' SOCIAL EVENING.

On Thursday, November 20th, the lady students held a Social Evening in the Common Room. About sixty past and present students attended. Tea was served at half-past five.

The following is the Programme of the entertainment.

Solo Pianoforte—	"Impromptu" (Raff)	Miss Glydon.
Recitation—	"Love Versus Learning"	Miss Naden.
Song—	"Two's Company"	Miss I. C. Evans.
Solo Pianoforte—	"Impromptu" (Schubert)	Miss Bennett.
Selection from—	"She Stoops to Conquer"	Misses Perry.
Song—	"When the Heart is Young"	Miss Brierley.
Solo Pianoforte—	"Gavotte"	Miss E. Rubery.
Song—	"My Soul is an Enchanted Boat" (Dolores)	Miss M. C. Albright.
Duet from Princess Ida—	"Now Wouldn't you like to Rule the Roast"	Miss Evans. Miss Rubery.
Song—	"Knows't Thou the Land" (Beethoven)	Miss M. C. Albright.
Song—	"Rock me to Sleep"	Miss Hadley.
Reading—	"The Notary of Perigueux"	Miss Southall.
Song—	"Ages Ago"	Miss Rubery.
Part Song—	"Stars the Night Adorning"	

As the piano contributed in such a large measure to the entertainment of the lady students, they feel that they cannot allow this opportunity to slip by without thanking the Common Room Committee for their kindness in granting them its use, and of assuring them that although no formal vote of thanks was proposed at the meeting, the lady students were not unmindful of their courtesy.

FOOTBALL.

MASON COLLEGE *v.* QUEEN'S COLLEGE (Scratch Teams).—This match was played at the Old Edwardians' ground, on Thursday, November 20th, and ended, as was anticipated, in an easy win for Queen's College by 3 goals 3 tries and 3 touches to 3 touches. The play throughout was of a nature rarely seen, as the Mason's team appeared to be made up of three forwards, ten half-backs (or spectators), two three-quarter-backs, and a full back. Most of these half-backs seemed imbued with an idea that to win the game it was only necessary to throw the ball as far forward as possible, a notion that seemed to be shared by one or two Queen's men.

"THE MASON COLLEGE AND TECHNICAL EDUCATION." *

This is an interesting and very instructive review of the advances made in technical education during late years. Our Continental neighbours and our American cousins can at present

* An address delivered at the Annual Meeting for the Distribution of Prizes at the Mason Science College, Birmingham, on Friday, October 3rd, 1884, by Charles Lapworth, LL.D., F.G.S., Chairman of the Academic Board.

boast a system much more complete and efficient than our own, their technical schools being, we note, generally maintained, partly or wholly, at the expense of the State. Our position, however, is encouraging. Much is being done at Oldham, Leeds, Manchester, and especially in London, and Birmingham is taking its full part in the work. "The place and function" of this College "is one of which we may be proud, and one which its founder would have regarded with especial satisfaction." We heartily agree with both the spirit and substance of the following sentences. "The great public educational institutions of the town—the Board Schools, the Grammar Schools, the Art Schools, the Midland Institute, and the Mason College—should divide the work between them; each devoting itself to that special branch to which it is best fitted. But there should be no waste of power, and no possibility of even a suspicion of rivalry or emulation. The educational ladder, up which the industrial student must ascend, should be complete and perfectly graded, from the day he enters the public school till the day in which he leaves college thoroughly equipped for life's work."

COLLEGE INTELLIGENCE.

The Mason College Additional Endowment Fund.—The Council have issued a circular, stating the insufficiency of the resources at their disposal "to enable them to cope adequately with the requirements of instruction, as now understood, either on the Science or the Arts side of the College." They press the need of Scholarships and Exhibitions, of improved apparatus for the laboratories, of well-furnished Museums, and of additional tutorial aid. To the following paragraph we would call especial attention. "The Council are anxious to make more liberal arrangements in respect of the staff of teachers, and to make, as soon as possible, some additions to their number. The Council have regretted the inferior development of the Arts side of the College, and especially the want of Professors of Logic, Philosophy, Political Economy, and Modern History. Experience has proved that the success of a College is much dependent on the provision of a complete curriculum of the arts and sciences." Accordingly, the Council propose to establish a permanent fund, to be called "The Additional Endowment Fund," to which they earnestly invite donations and annual subscriptions.

The following donatians have already been promised:

	£.	s.	d.
George Dixon, Esq., J.P. (to be paid in 1885) . .	1000	0	0
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Thomas Avery, Esq., J.P.	250	0	0
G. J. Johnson, Esq., J.P.	100	0	0
M. J. Smith, Esq.	100	0	0
J. E. Wilson, Esq., J.P.	250	0	0
The Right Hon. J. Chamberlain, M.P. (in five annual instalments)	500	0	0
Mr. Alderman Chamberlain, J.P.	250	0	0
Joseph Gillott, Esq.	250	0	0

Mr. Hookham.—Mr. Geo. Hookham, M.A., has resigned his position as a Trustee and Member of Council of the College, and Mr. Geo. Mathews, M.A., has been elected to fill the vacancy.

PRIZE COMPETITION.

We have much pleasure in announcing that the prize of one guinea, offered by members of the Teaching Staff for the best Analysis of one of George Eliot's novels, has been awarded by the judges, Dr. Tilden, Professor Hillhouse, and Miss Naden, to Miss Isabel C. Evans, writing under the pseudonym of "Dolce far niente." The Essay will probably be published in a future number of the Magazine.

OUR CONTEMPORARIES.

Haileyburian (November 5 and 26) is scarcely up to its usual mark in poetry. The poem on Football is, however, decidedly touching. The proceedings of the Natural Science Society must be amusing. We read that "C. Hawkins, Esq., mentioned an account of remarkable animal intelligence," whereupon, apparently to clench the argument, Baines passed round two loaves, the inside of which had been entirely removed by mice." The analysis of "Alton Locke" is intelligent.

Laurel Leaves contains an interesting discussion of the question: "Were the former days better than these?" The affirmative paper is bright but superficial, the negative thoughtful and carefully reasoned. Why does not the lively "Cambridge Letter" find its counterpart in our Magazine?

The Reptonian maintains its eloquence anent cricket. The "characters" of the "Eleven" are edifying. A correspondent pathetically protests against the name "old gentlemen" applied by an irreverent reporter to the "illustrious heroes of Repton's great past," who seem to be more than a match for the Reptonian cricketers of these degenerate days.

We also acknowledge the receipt of *The Marlburian*, *The Eagle* (July and December), *The Institute Magazine*, *The King Edward's School Chronicle*, and *Our Magazine*.

ERRATA.—Page 107, line 31, for "sympathetic" read "synthetic;" page 116, line 27, for "R. F." read "E. F."

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